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JOURNAL OF HORTICULTURE,

COTTAGE GARDENER,

AND

HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING BEE-KEEPING.

CONDUCTED BY

ROBERT HOGG, LL.D., F.L.S.

Established



in 1848.

VOLUME XX. THIRD SERIES.

JANUARY — JUNE, 1890.

LONDON:

PUBLISHED FOR THE PROPRIETOR, 171, FLEET STREET.

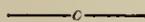
LONDON :

PRINTED AT THE JOURNAL OF HORTICULTURE OFFICE,

171, FLEET STREET.



TO OUR READERS.



A QUESTION we are often asked is this—Is horticulture advancing? If we take as evidence Roses and Strawberries—which now abound—the reply must be distinctly in the affirmative, for at no period was either of them so well and extensively cultivated in fields and gardens as at the present time.

We are glad also to believe that in other directions progress is being made, and we are convinced that never before was gardening so highly cherished as it is now, nor practised so well in its many branches by such a large number of persons in this country.

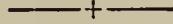
All this is gratifying, as though rain may spoil a few Roses and Strawberries, and frost and caterpillars decimate our fruit crops occasionally, they are only passing troubles, and the more widely and well the art of gardening is pursued the greater the pleasures and benefits to individuals who engage in it, and the greater the advantages to the general populations who enjoy what is so freely produced.

It is not only our duty but our pleasure to gather the best information that is available for distribution to the world through the JOURNAL OF HORTICULTURE, in the hope and with the object that the advance in gardening in its varied phases will be greater in the future than in the past; and we cannot adequately record our obligations to all who so willingly and ably co-operate with us in this most agreeable work.

In tendering our thanks to *all*—gardeners and amateurs—who by their talents have enriched the pages of the last completed volume of this Journal, we desire to add that seekers for information are also helpers in eliciting it, and we cannot conceive any greater pleasure than assisting young gardeners and inexperienced amateurs in moments of difficulty.

The key note of the JOURNAL OF HORTICULTURE is *usefulness*, and the desire of its conductors and staff is to be helpful to all.

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5



NEW YEAR'S GREETING.

TO our "most grave and reverend seigneurs," to our fair dames and gentle maidens, to our young and ardent athletes; in a word, to all our masters and mistresses, we, the old fogies and the young hands connected with "our Journal," send all brotherly greeting on the opening of another year. In the words of the old song, "we have lived and loved together," and the experience of so much kindly feeling in the past leads us to look hopefully on for the future, and as it is usual at this season to go through the process of stock-taking, so I would desire to take stock of horticulture and our connection with it during the past year.

I have already given my notes of what was noteworthy in the Rose world during the past season, and have only to add now that the Journal has worthily maintained its reputation as *par excellence* the organ of the queen of flowers; its full reports of Rose shows and meetings have shown the lively interest it has ever manifested in their culture, and I shall therefore leave the ever tempting field and go off to other pastures.

And surely first of all the state of the ROYAL HORTICULTURAL SOCIETY is that which occurs to most horticulturists. Time was when one could not but think of it with dismay, when one saw tens of thousands of pounds squandered on South Kensington for the especial delectation of the nurserymaids and babies of the neighbourhood, or for the croquet and lawn tennis players of our *jeunesse dorée*, when horticulture was the last thing thought of, and when the Commissioners of 1851 sat like a huge nightmare on it, when men were appointed as members of Council who hardly knew the difference between a Hollyhock and a Dahlia, and their Secretaries were in equally blissful ignorance, and the few horticulturists who were connected with it felt despondingly about its prospects. All that has been happily changed. It was turned out in a particularly shabby manner from South Kensington, it has been carried on on a thoroughly popular basis, the old system of cliques has been got rid of, and with it those pitfalls and quagmires into which there was ever a danger of falling by anyone who ventured to interfere for its welfare. I was in those days obliged to say some hard things about it, and got considerably "sat upon" for my pains; however, my words have proved correct, and it is no small gratification to myself, and I may add to all members of the Horticultural Club, that the first real step in the new direction was taken by it. When notice to quit South Kensington had been given I ventured to suggest that the Royal Horticultural Society should form the subject for discussion at one of our monthly meetings, and that the President should be invited. On that evening the "outside Committee" was proposed, and to its appointment may be traced, I think, many beneficial results which have since ensued. The Society has been especially fortunate in having secured the services of the Rev. W. Wilks as its Hon. Secretary, and Mr. Morris as its Honorary Treasurer. Through their means the "Transactions" have been made a valuable production, and have been brought out in good time, and everything has worn a smiling aspect—no, not everything; the Drill Hall can never bear that character, but I hope the time has now come when the horticulturists of this kingdom may provide a place for their chief Society to meet in. It is now an open secret that this is busily engaging the attention of the Council, and let us hope that the year 1890 may witness the commencement of an effort to wipe out the disgrace of the horticulturists of this kingdom, numbering

amongst their ranks men of all ranks and degrees, having no place of their own in which to hold its meetings. We do not want a place for big shows (I believe that is unnecessary), but a place where the fortnightly meetings may take place without injury either to plants or visitors.

In all directions I think we see the love of horticulture progressing. The fashions which influence it may change, but the love of flowers is so innate in our people that they must ever be popular. It is just possible that the length to which flowers at funerals have gone may cause a reaction, but flowers in one form or other we must have, and we cannot but rejoice to see so many influences at work to this end. As last year, so the three flowers which have most occupied the thoughts of gardeners have been the Orchid, Rose, and Chrysanthemum. The progress made by the latter flower has been remarkable; it lacks the refinement of Queen Rosa, or the varied charms of the aristocratic Orchid, but these are not everybody's flower as the Chrysanthemum is, cheering us in the dreary months of November and December, and bringing us with the later sorts well up to the end of the year. But while attention has been devoted to these flowers, the cultivation of all kinds of flowers, vegetables, and fruits has progressed. A great movement in the latter has taken place, and, as is usual with us, we have been rather inclined to ride the hobby to death. While there is no doubt much to be done by the better cultivation of better sorts, as has been well shown in the Fruiterers' Company's prize essay on fruit growing, yet that fruit is ever in this country to take the place of any of our other products or drive the foreigner out of our markets is a wild chimera. It must ever be an object of interest to those who desire the welfare of those around them to encourage this taste for gardening, and especially for flowers. We see how it survives in the very dreariest portions of our great city, and how tenderly the pot of "Geranium" or Mignonette is regarded, and it is quite well that it should be so. "I have been young and now am old." I have had many fancies in my day, but the love of flowers has had the main place, and I am thankful to say still survives; indeed, I think that I love them more than ever I did, although I do not think that they are the solace to me now that they used to be when I had charge of a town parish, with its manifold cares and trials and its severe work; when many a time after a day's work and worry I came home, and, turning into my garden, small and insignificant though it was, forgot the worries of the day. Did I not find, too, that if I had had to do with some crusty parishioner there was a plant that had equally bothered me? and that if I was rejoiced, on the other hand, at someone turning from evil ways under kind and loving treatment, was there not that plant which I had so carefully tended returning me tenfold for all my care? Yes, my good friends, young and old, let me earnestly press on you to love and cherish your flowers for their own sake, and for the enjoyment they can and do afford to all who treat them lovingly.

I do not think that the year has been very remarkable for the introduction of any great and startling novelties. There have been some excellent examples of the result of hybridising amongst Orchids, but there have been no such remarkable introductions as have characterised previous years. In florists' flowers, too, there have been many introductions, but I do not think that there has been any great advance; indeed in most classes of florists' flowers advance seems well nigh barred. Border Carnations are evidently largely increasing in favour, while I fancy single Dahlias have somewhat receded from the position they held. Chrysanthemums have increased in number and in size, but whether in quality may be perhaps questioned; the rage for undue size seems to me to be destructive of this quality. A great sensation has been created by the introduction from America of the curious variety Mrs. Alpheus Hardy, but it is an instance of how largely the idea of size dominates the minds of Chrysanthemum growers that already it has been condemned as not large enough. It has been described

and figured in the Journal, so there is no need to say anything about its character, but having seen it I can say that it is one greatly to be admired as curious and pretty. Begonias, especially the double varieties, have reached wonderful perfection, and the latter are now being produced better in form and with stouter stems, so that we may soon hope to see them holding themselves upright instead of hanging down or needing sticks to support them. The progress made in many of our favourites is not by "leaps and bounds," but none the less is it sure; and all honour be to those who thus try to enrich our stores and increase our enjoyment.

Amidst all that is bright and pleasant there will come over us while we are here clouds which dim this brightness, and so one in looking back over the past must think of those who are no longer with us. Heading the death roll in point of time and in the general knowledge of horticulturists we must count our late lamented friend the Hon. and Rev. J. T. Boscawen; earnest and indefatigable, moving in the higher circles of society, he was able and willing to use his influence for the benefit of horticulture. It was thus he gained for the National Rose Society the patronage of H.R.H. the Princess of Wales, and thus he was always able to influence for good the magnates of the neighbourhood wherever the Bath and West of England Show was held. This was his special work; his kindly and genial manner made him always an acceptable companion, and he has been and will be greatly missed in all future gatherings of that Society, as well as in those of horticulturists in general. Mr. Henry Curtis of Torquay has of late years been little seen amongst Rose growers, although I think few knew the Rose better or loved it more than he did. Deprived by the loss of sight of the enjoyment he once had in his flowers, he yet could speak of them with feelings of affection, and it must not be forgotten that when the National Rose Society first essayed to publish a Catalogue the Committee applied to him for the illustrations. His gentle and loving spirit found other outlets for its operations, and in doing good to those around him, showing sympathy with them in their times of need, and especially in extending to them the benefit of medical electric treatment, he spent the latter years of his life. Robert Marnock was comparatively unknown to the men of this generation. His work as a landscape gardener will long remain to mark his success, while all who knew him even slightly can but recollect him as a genial friend and companion. As long as the gardens at the Regent's Park remain they will form the most fitting monument to his memory.

And thus year after changes are ever occurring, while improvements are also ever taking place, the "work of the Journal" still goes on as successfully as ever. New writers take the place of those who have retired. It endeavours to accommodate itself to changes so far as they are in the interests of horticulture. Another year is before us; we look hopefully forward, for we are assured of the hearty goodwill of our readers. There are many ways and phrases for expressing our goodwill, but after all I know of none more expressive, more full of hearty sympathy, than that with which I now close these few words—

GOD BLESS YOU.

—D., Deal.

SULPHIDES AS FUNGICIDES.

MR. STEEL suggests that I should give him a wrinkle on the treatment of mildew of the Hollyhock. Although I have no experience in the operation of remedies on that plant, I have given some attention to the treatment of the disease in a great variety of others.

In the columns of the *Gardeners' Chronicle* of 1885 I introduced to the notice of gardeners the powerful effects of solutions of sulphide of potassium on all forms of fungoid growth. At that time I had about thirty-five years' experience in the use of the drug in the treatment of men and animals for ailments due to low forms of animal and vegetable life, but my experience of its application to plants was limited. Since then I have by many experiments fully confirmed the statement then made—that a solution of sulphide of potassium was fatal to all forms of fungus life; but the larger

experience taught me it is indispensable that the solution should be in actual contact with the fungus in order to produce its proper effect. There are many forms of fungus growth which throw off from their surfaces watery solutions, exactly as the feathers of a duck throw off water; in such a case the solution is inert, but in all cases where it comes into actual contact it is without exception fatal to the fungus. I know of no remedy for mildew on any plant which is more effectual, and generally so easy of application. A solution of half an ounce to a gallon of water is sufficiently strong, and absolutely harmless to vegetation—indeed, I have repeatedly plunged Orchids and other plants of many various kinds, soil and all, overhead in the solution without the slightest injury to them, but, on the contrary, with apparent benefit to their aftergrowth. This may be due to the potash—a necessary constituent of all plants—acting as a manure.

I know no better method of meeting the difficulty above referred to, as to contact, than the use of the sponge for wetting the surface when the fungus throws off the solution; in some cases this may be done by a very fine spray, the small globules of which will remain on the mildewed surface.

Powdered sulphur has for a long time been known as an effectual remedy for mildew, but it is unsightly on the leaves, and not so quick in action or convenient in application as sulphur in its soluble form when combined with potash, which, as a fungicide, is probably inert. There may be a difficulty in procuring the sulphide of potassium in good condition. The drug when kept, after a time decomposes and becomes inert, and druggists, if they keep it, rarely renew their stock, it having gone out of fashion as a remedy, probably owing to its offensive odour. If in good condition it will make a bright yellow solution. When there is difficulty in procuring the drug, the gardener may himself prepare another sulphide, which is equally efficient, and was frequently used by old gardeners, known to chemists as the bi-sulphide of calcium, by boiling say 1 lb. of freshly slacked lime, with an equal quantity of flowers of sulphur, in a gallon of water for a quarter of an hour. The supernatant liquor should then be poured into a bottle and kept well corked; when required mix sufficient of this with water to make a solution for use of a light yellow colour, and deal with it as with the potassium sulphide solution.

Sulphide, or more correctly ter-sulphide of potassium, formerly known as liver of sulphur, has the strong and well-known odour of sulphuretted hydrogen or of Harrogate water, and, in common with the latter, many healing qualities, due to its destructive effects on low forms of animal and vegetable life, having a beneficial action on all affections caused by them. For external application to festering and poisoned wounds to which gardeners are liable, whitlows, and many forms of skin disease in men and animals, a stronger solution than that recommended for plants, say about half an ounce to a pint of water, should be used. In many cases a single application effects what appears to be a magical cure, and it never in the slightest degree, even if many times repeated, does any injury. The sulphide solutions discolour lead and other mineral paints, but the stain is superficial, and soon wears off.—EDMUND TONKS.

FLOWER CULTURE FOR PROFIT.

IN too many instances the owners of large and small gardens alike have been ill-informed enough to imagine that the gardener in charge ought to realise sufficient from sales generally as to make the garden self-supporting. Not a few gardeners, too, were at one time imbued with the same idea, and rented the houses, kitchen and fruit garden, receiving, it may be, a fixed sum for keeping the pleasure grounds in order, furnishing the flower beds, house and conservatory with plants. In many cases little beyond worry and anxiety have resulted from the arrangements. A garden was once offered to me almost at my own terms, but I declined it. There was a time, or say up to about fifteen years ago, when fruit and vegetables sold well. Grapes, Peaches, Strawberries, Melons, Cucumbers, and hardy fruits generally all realised highly remunerative prices, and the same might be said of vegetables, forced or otherwise. All this is now altered. The case with cut flowers is different. These, although largely imported, are of a more perishable nature, and the home grower can more than hold his own with the foreigner during the greater part of the year. Unfortunately very few of the glass structures in private gardens are well adapted for the cultivation of flowering plants, added to which one of the conditions imposed on gardeners renting private places is that everything at the end of a fixed lease shall be left exactly in the same state as the lessee takes it over. This, for obvious reasons, is fatal to ultimate success.

Instead of the gardener renting a garden, let him propose that he do the best he can with everything, both as regards economising labour and marketing produce; and let him have, as I have, 10 per

cent. commission on all the sales of garden produce effected, the home consumption being exempted. This is best for the master and fair to the man. Growing for sale, including the all-important details of finding the best markets, packing and booking, entails very much extra labour and worry for the gardener, but if he has a direct interest in the success of the undertaking he will never slacken in his attention to the work, but, on the contrary, there is every probability of the owner of the garden being a great gainer rather than a loser by the bonus given. The sum (2s. in the pound) is not one penny too much, and ought to be unstintingly granted to every private gardener who markets surplus produce, no matter in how small quantities.

I propose to treat on flowers that I have found can be profitably cultivated, giving the requisite details. It will be found that the most prominence will be given to plants producing white flowers, the demand for these being far in excess of coloured flowers generally, though there a few of the latter that pay well. What I have found the most profitable are Tea Roses, including the very popular Maréchal Niel, Eucharises, Pancratiums, Chrysanthemums, Christmas Roses, Bouvardias, double white Primulas, Richardias, Violets, Cyclamens, Stephanotis, Carnations, Spiræas, and in a lesser degree Lilies of the Valley, Roman Hyacinths, Tuberoses, Camellias, Azaleas, Double Zonal Pelargoniums, white Begonias, Clivias, Allamandas, Gardenias, Poinsettias, Adiantums, Liliun candidum, Mignonette, and a few Orchids.—M. H.

NOTES ON FORCING VEGETABLES.

FRENCH OR KIDNEY BEANS.

THE Kidney Bean, being a native of India, is only had in perfection with us in the warmer months of summer. It cannot be ventured in the open air till all chance of spring frosts is over, and it is sometimes cut down very early in the autumn just when perfecting its crop. Especially was this the case with us in 1888, when the plants were killed by frost on October 1st. It is a vegetable that is much esteemed, and cannot be had too early; but it is not so easy to force as some others. For early forcing it requires a high temperature—viz., from 60° to 70°, never falling below 60°. It is very liable to be attacked by red spider, and a constant use of the syringe must be maintained. They must never be allowed to suffer through having insufficient water at the roots, or red spider is sure to appear. If this pest attack the plants they should be well syringed with water mixed with sulphur and soft-soap—2 ozs. of the latter and 1 oz. of sulphur to a gallon of water, the plants being laid on their sides while syringing them.

For early forcing the plants should be grown in 8 or 9-inch pots. Some growers raise these Beans in 60-sized pots, and after they are well up shift them into the size just named. But I prefer placing them in their largest pots at once for two reasons—viz., it saves time; and when they are raised in 3-inch pots, if they are not repotted as soon as the roots touch the sides, they soon become root-bound, and they receive a check from which they do not quickly recover. Some leave room for a top-dressing; but this is not necessary, as they will do quite as well without.

The soil should not be too strong, a compost of equal parts of leaf mould and loam, with plenty of sand and a sprinkling of charcoal dust, suits them well. A little of Thomson's, or any approved artificial manure, given when the plants are fruiting and watered in, will help to lengthen the fruiting period. As the spring months advance Kidney Beans may be grown in Melon houses and heated pits or frames, with or without bottom heat. Of course if bottom heat can be had so much the better. We plant in our Melon houses at the beginning of February, raising the Beans in boxes on hot-water pipes, but they may also be raised in 3-inch pots and planted out. As the Beans advance in growth they should be supported by twigs or sticks. Sow some at intervals to keep up the supply. As pits or frames are cleared of early Potatoes they may be filled with Kidney Beans, and thus the supply can be kept up till they can be gathered from outdoor plants. The best sorts for forcing are Osborn's Prolific and Ne Plus Ultra.

RHUBARB.

Rhubarb is found to be much improved in flavour by being blanched, as well as effecting a saving of sugar in rendering it agreeable to the palate when served. According to the doctrine of Knight, Rhubarb, like most other perennial herbaceous plants, contains within itself during winter all the organisable matter which it expends in the formation of its flowerstalks and leaves, and requires neither food nor light to enable it to produce either. All it requires are heat and moisture. The roots of Rhubarb dug up entire at any period after the decay of the leaves of the preceding season, and taken into a forcing house, there placed upon the surface of the borders in a convenient place and supplied with

plenty of water, will produce a reasonable quantity of leafstalks for use during the winter months.

Those who have a Mushroom house will find it a very convenient place for forcing Rhubarb. By putting a few roots in (according to the demand) about once a month a supply will be forthcoming all the winter. Another excellent way to force it after the month of February (where plenty of stable manure can be had) is to prepare manure or manure and leaves the same as for a hotbed, and wheel it on the beds where the Rhubarb is growing, first covering the stools with forcing pots or anything that can be had to keep the manure a sufficient distance away to permit the leafstalks being thrown up freely. The manure should be placed on and round the pots to the depth of a foot or 18 inches, so as to prolong a gentle heat, and in a short time plenty of Rhubarb will be fit for pulling, and will continue to be thrown up till it can be had without artificial means.

SEAKALE.

Few vegetables are improved more by cultivation than Seakale, and few are more useful for forcing. Like the Rhubarb it is easily managed, and can be forced in a variety of ways. I have forced it in champagne cases on the top of a saddle boiler. The roots were placed closely in one case among soil and another case placed on the top to insure the growth being blanched. Very good Kale was thus produced, which gave much satisfaction. It can also be grown in 16-sized pots, with an inverted pot the same size over it, placed in a forcing house under a stage or in any convenient place where a temperature can be maintained at from 50° to 60°. It also does very well in the Mushroom house in company with the Rhubarb placed near to the hot-water pipes, taking care that it has sufficient water. If roots (the quantity according to the demand) are placed in at intervals of two or three weeks a constant supply will be had through the winter months. Seakale roots should be dug up about the end of October and placed in ashes in an open shed or some convenient place in readiness for taking to the forcing house as required.—G. HILTON.

INSECTS OF THE FLOWER GARDEN.

(Continued from page 375.)

A LARGE family of small moths is that sometimes familiarly called that of the bell moths, because when we see them at rest upon palings they assume the bell shape. Often do we notice them flying in little parties during the twilight of summer or autumn, though some take their excursions in the brightness of noon. Also we name them the Tortricidæ, which we may render "the twisters," derived from the habits of the caterpillars, as they twist or bend the leaves and shoots of their food plants to afford themselves shelter from their foes and the weather. Most of them choose for their food the leaves of trees and a variety of wild shrubs; only a few of them trouble us in the flower garden. Certain species of the family are unfortunately too well known as enemies to our fruit trees, and their particular mode of life renders it difficult to deal with them effectively, and yet avoid all damage to the tree or plant upon which they feed. To only a small number of these and their lesser brethren, the Tineidæ, have English names been attached; these are not usually appropriate, sometimes even ridiculous.

There is a silvery grey, narrow-winged moth, expanding about an inch, and very active, which is so frequently to be seen in our gardens during the summer, and is named *Pyralis glaucinalis*. It would be a natural conclusion that it fed, as caterpillar, upon some garden plant, but it is not so, as the Nettle affords it nutriment, a plant which has no business to be in any garden as a resident. A late-feeding caterpillar, noticeable in September and October, which produces the moth called *Ebulea sambucalis*, occurs upon garden *Convolvulus*; sometimes drawing the leaves together, its proceedings are not very observable at first. It is pale green, lined with white or pink, and if alarmed, drops suddenly from the plant. The Honeysuckle is a plant much infested some seasons with caterpillars, as also with aphides. When it should be full of flower, the shoots and leaves may be contorted in May and June by the caterpillar of *Tortrix xylostearia*, a pretty little creature, of a dull olive green, having whitish spots with black centres. By judiciously shaking the shoots the caterpillars may be made to fall from their retreats, each hanging by a thread, and can thus be captured. The moth flies in July. Another foe to the Honeysuckle feeds on the leaves later, about August, this is *Grapholita albersana*. It is a greenish grey colour, with a yellow head, large for the body, and a shield or plate behind it, black dots are placed from head to tail in pairs. In feeding this caterpillar selects two full-sized leaves, and binds them together with silk, then remains hidden until it has eaten the upper surfaces, when it migrates. We see the moth

flitting in the twilight of May, the small brown wings are marked with white and gold. Then the variable *G. hypericana*, brownish also, but paler, and streaked with black and gold, comes from a green or greyish caterpillar, which feeds upon the flower-heads or tops of St. John's Worts, or garden plants allied to the Hypericums.

Our queen of flowers, the Rose, is singled out for attack by more than one species of Tortrix, and it needs a watchful eye to detect the eggs, which are frequently deposited on the stems in autumn, to be hatched out in the spring. It is often the case that during April and May, when the caterpillars are feeding, they have both weakened and disfigured the Roses before the gardener is awake to the mischief. *T. Bergmanniana* is very troublesome in the south of England, but is scarcer in the north. Most gardeners have seen the little caterpillar of a pale green, with a shining jet black head, wriggling from a doubled-up leaf, and small as it is its appetite is considerable. First it damages the buds, checking their expansion, then feasts on the leaves. We find the moth flying by day at the end of June and in July; under a hand magnifier it is seen to have lustrous markings of violet upon the lemon ground colour. Then the caterpillar of *Spilonota roborana* feeds about the same time. This is also black-headed, but the body of a dull brown colour. It has a penchant unfortunately for the tops of young shoots, which it doubles up in a fashion that checks their development. A third caterpillar infesting the Rose is *S. ocellana*, allied to the former but less common. The moths in both are very variable in appearance. Probably careful hand-picking is the best remedy for all these. Of course syringing will remove some of them, and dusting the leaves with sulphur while they are damp has been recommended.

A small moth, with glossy, pale brown wings, common in many places, named *Anchylopera lundana*, is developed from a grey caterpillar spotted with black, and having a pale shield behind the head. The usual food is some leguminous plant, of which it unites the leaves, such as *Vicia* or *Lathyrus*. There appear to be two broods yearly. Though named from the Rose, the caterpillar of *Eupæcilia roseana* conceals itself in the heads of composite plants in gardens, devouring the immature seeds about August or September. It is yellowish white, and adorned with some raised spots; down the back runs a white line. Another enemy of the composites is the caterpillar of *Halonota fenella*. The mature insect is remarkable for having upon the dark brown wings a curved white mark, resembling the head and neck of a bird. While quite young its caterpillar bores into the stem of a plant 3 or 4 inches from the ground, and works down to the roots, where it may be seen early in the year, becoming a pupa about May. It is yellowish white, has a brown shield, and a heart-shaped shining head. The plants attacked seldom survive the injury.

In the group of moths called the Vineæ are many species which, when in the caterpillar state, by feeding upon buds, leaves, or flowers somewhat disfigure them, and a few are specially destructive to trees, however, rather than to the plants of our beds and borders. A species called the greystreak (*Plutella porrectella*) is tolerably familiar to gardeners, since it attacks persistently the Rocket, and several other garden plants in the same family. The moths, which are greyish white, except some spots of black and brown, seem to occur in colonies. A brood is noticeable in early summer, and another about two months later, so that there are also two broods of the caterpillar; of these the first does the more mischief, as it feeds upon plants while the leaves are tender. A bunch of the terminal leaves are, by means of a silken cord, tied together, and within this shelter the caterpillar lives securely, at least from bird and insect foes. Occasionally we discover a party of three or five have joined company, and formed for themselves a general covering. It is surprising how these, and similarly small caterpillars, can manage to pull or twist the leaves and stems of plants, even when working solitarily. These caterpillars may be destroyed by throwing tobacco water or a decoction of quassia over the plants. In the genus *Depressaria*, where the moths have flat, elongated bodies, several of the caterpillars are sometimes found feeding upon the flower heads of the umbelliferous species cultivated in gardens, or such species as the *Centaurea*; their webs are noticeable, and should be promptly removed. To this group belongs the one called the confluent barred moth (*Gracillaria syringella*), a pretty species of yellow, black, and brown, but very injurious to the Lilac. It appears to attack this shrub most persistently when it is growing in or near a town. I seldom find Lilacs in the country much troubled by it. Near London the Lilacs are nearly defoliated by it in some seasons, as there is both a spring and an autumn brood of the caterpillars. They commence proceedings by mining the leaves, causing blotches; when they get larger they roll the leaves, and so effectually as to defy all enemies. Many may be, however, shaken from these retreats and then destroyed. Young Lilacs are, in some instances, greatly

retarded in their growth by the insect, and older shrubs are weakened, the result being that they exhibit few flowers.—
ENTOMOLOGIST.

FORCING SHRUBS.

THE forcing of hardy shrubs is not carried out with so much alacrity in these times as in my younger days. I well remember that forty or fifty years since this hardy shrub forcing was one of the most important affairs for consideration in the month of November. And why? Simply because they had scarcely any flowers in those days which blossomed naturally in winter; but, as is now the case with the natives of Britain, the love of flowers did not cease even in the dormant season. There was still a hankering after them in defiance of snow storms and the ravages of King Frost—that imperious monarch who attempts to bind in fetters the pets of the vegetable kingdom.

In those days to which I have adverted gardeners used to rush into the nurseries about the metropolis at the beginning of November to mark American shrubs for forcing, and to select Moss and Cabbage Roses for forcing purposes, and some other little things, in order to sustain a kind of plant house through the winter; and although a little wide of my purpose, I may observe that there was a great demand for Asparagus roots and Seakale, in order to keep the cook in temper.

But we have had such a splendid lot of plants introduced during the last score years that flower naturally or with little excitement through the winter that we care much less about this shrub forcing; and indeed it is well so, for no man can force these hardy shrubs well at an early period without something like a special provision for them. But as there are those who still love to indulge in a forced Moss or Cabbage Rose, a hardy or American Azalea, &c., I will make bold to proceed with my remarks. And first let me point to the names of a few of the families which stand foremost in this affair. I must place them in the order in which they occur to me.

Roses Moss and Provence, Azaleas the American, Lilacs, Mezereon, Honeysuckle, Sweet Briar, Ribes sanguineum, Deutzias, Weigelas, Forsythias, Sedums, Andromedas, Rhododendrons, Kalmias, and Rhodoras. These are a few of what used to constitute forcing materials as to mere shrubs, and let me add that they still possess much interest.

Now in the first place, unless these shrubs have made a growth adapted to forcing purposes previously, it is in vain to expect a high degree of success. In order to render the matter familiar to readers who do not understand the formation of blossom buds in plants I will put a case or two. Most are familiar with our hardy American Azaleas. They have seen bunches of these with blossom buds on some points and none on others. This must strike any ordinary observer. Now the barrenness of some shoots may arise from more than one or two causes. In the first place those shoots may be too luxuriant, or they may be late growths, or they may have been too much shaded by other growths, or, finally, they may have been too weak to produce a blossom bud, for a certain amount of strength is indispensable, although too much constitutes in many plants an invincible coarseness. The conditions requisite to form blossom buds in this family are an intermediate strength of wood, early growth, and ripening the wood.

And now I may allude to the Moss Rose, and this is more difficult, I confess, to explain. It does not blossom from the terminal points of the old wood like the Azalea, but from small buds like pin-heads, with which the sides of such shoots are studded. As to why it should be so I cannot fully explain, for it does appear strange in pruning such Roses to cut back to these simple-looking affairs; but this may suffice to point to the great difference in habit between such things as the Azalea and the Rose.

In looking over the plants suggested for forcing purposes I perceive it necessary to observe that some of them must be established in pots to succeed, and that others are quite as well removed from the open ground. Roses are almost useless unless well established in pots. Lilacs have ever been thought best thus established; Sweet Briars the same, and let us add the Mezereon; but when we come to the American plants the case somewhat differs. These have been taken from the open ground, and forced immediately for probably nearly a century.

As to the conditions requisite for forcing them, for, although they will blossom in due time stuck on a greenhouse shelf, yet to have them flower at the end of January, or sooner, requires a special course of treatment. A moist heat is of the highest importance; but that genial moisture which is destined to qualify the heat used, and to satisfy gaping pores in the foliage, depends but too often on the chances at command rather than on principle. After all, gardeners seem to admit that there is nothing like a dung bed, and, indeed, there is much truth in the opinion; but we must in the

main try to do with such means as lay at our elbows. Be such what they may, a certain amount of heat and also of air moisture is absolutely essential in order to command success. Bottom heat, too, is of great importance in this matter. All shrubs force much better for plunging in a proper medium. Not that they will not succeed without it. They should by all means have as light a situation as possible, and be near to the glass.

With regard to air heat it may be very moderate during the first stage of forcing, for our business is to excite a root action first, and, indeed, under any circumstances the buds of these plants require a given time to develop themselves.

Speaking here of the development of blossom buds reminds me of the length of time the Camellia requires to swell and expand the blossom bud. The latter, first manifest in May or June, cannot by fair means be made to expand before November. Here we see half a year consumed in organising and expanding the bud. This is, however, no great marvel when we consider the great amount of well-constructed petals which a bud contains, and which must of necessity take much time in perfecting, so that the beginner in forcing matters must not be astonished and impatient that his things make such slow advances. But it is so in all forcing matters. The Vine, Peach, and Strawberry all have to swell and expand their buds in a tardy way. As for Strawberries, one of the chief secrets of their successful forcing is to bring them forward in their earlier stages by a low temperature and by almost imperceptible degrees.

But to return to our shrubs for forcing. Let me observe that those which are deciduous, as the Moss Rose, Rhodoras, American Azaleas, and Lilacs will pass the first three weeks of their forcing with very little light if needs be. They have little occasion for light until the foliage commences development. The knowledge of this fact may sometimes enable the operator to economise his space.

During the time that the bud is expanding syringing should be used both morning and evening, providing there is fire heat applied to the structure. If only dung heat, and the weather is dull, the syringe must certainly be dispensed with, as the steam from the fermenting materials will be amply sufficient. A liberal ventilation is proper. These hardy things cannot bear coddling, and in order to carry out such it is necessary to be provided with plenty of heat to meet such contingencies. Where persons force with the aid of fire heat in combination with bottom heat this is easily accomplished. Where dung pits are used without fire it is very difficult, and the consequence is that much putrefaction through damp is engendered through the earliest part of the spring. Of course watering at the root must be attended to, and it may be observed that American plants taken up with balls of earth require very liberal waterings, especially as they approach the blossoming state.

Here I may as well advert to the potting them from the open soil. I before observed that there would be what is termed "a ball"—that is to say, a mass of fibres, from which the soil is with difficulty disengaged. Now, this ball is not by any means so readily permeable by water as the loose soil by which it is surrounded in the act of potting, therefore in the act of potting caution should be exercised, and the soil should be pressed in very firmly around the ball; but, be it remembered, that soils in a moist state will not bear much pressure, therefore it becomes necessary to use dryish soil.

I may here speak of retarding matters, and have to observe that this class of flowers are in general so susceptible of extremes of temperature in the heat way that, unless caution is exercised, their beauties are soon dissipated. Azaleas and Rhododendrons left in a hot place where the forcing is carried on will not endure above a fortnight in all their freshness. Removed to a cool house or room they will in most cases endure treble the time, especially if kept from much sunshine. Plants of this description are the better for a little pruning previously to their being introduced to heat. Lilacs and Azaleas often possess a few coarse shoots projecting beyond the true blossom. These having no blossom buds on are simply in the way of the object sought, and may be pruned close back.—E. N.



THE LATE CLYDE DISASTER.

At the final meeting of the Committee, held at the offices of Messrs. Protheroe & Morris on the 20th of December, Mr. H. J. Veitch presiding, Mr. Horsman, the Honorary Secretary, announced that the total receipts amounted to £453 3s., and it was unanimously

resolved—first, that the subscription list be declared closed; second, that the sum of £452 be equally divided between Mrs. Hall and Mrs. Fraser; third, that the arrangements for investing the respective amounts be left in the hands of Mr. Veitch and Mr. Protheroe; and fourth, that as soon as the investments have been made a report be sent to all subscribers. Mr. Horsman was accorded a hearty vote of thanks for his services as Secretary, as also were the editors of the various gardening papers for their kind co-operation in giving publicity to the Committee's proceedings.

CYPRIPEDIUM GALATEA MAJUS.

HYBRID Cypripediums are so numerous that it might now be thought difficult to obtain distinct and meritorious novelties, but this does not appear to be the case, and additions are constantly being made to the lists of handsome seedlings. During the next four years we may expect to see many more, for some thousands of seedlings have been raised, both by amateurs and nurserymen.

Cypripedium Galatea majus was exhibited by Baron Schröder

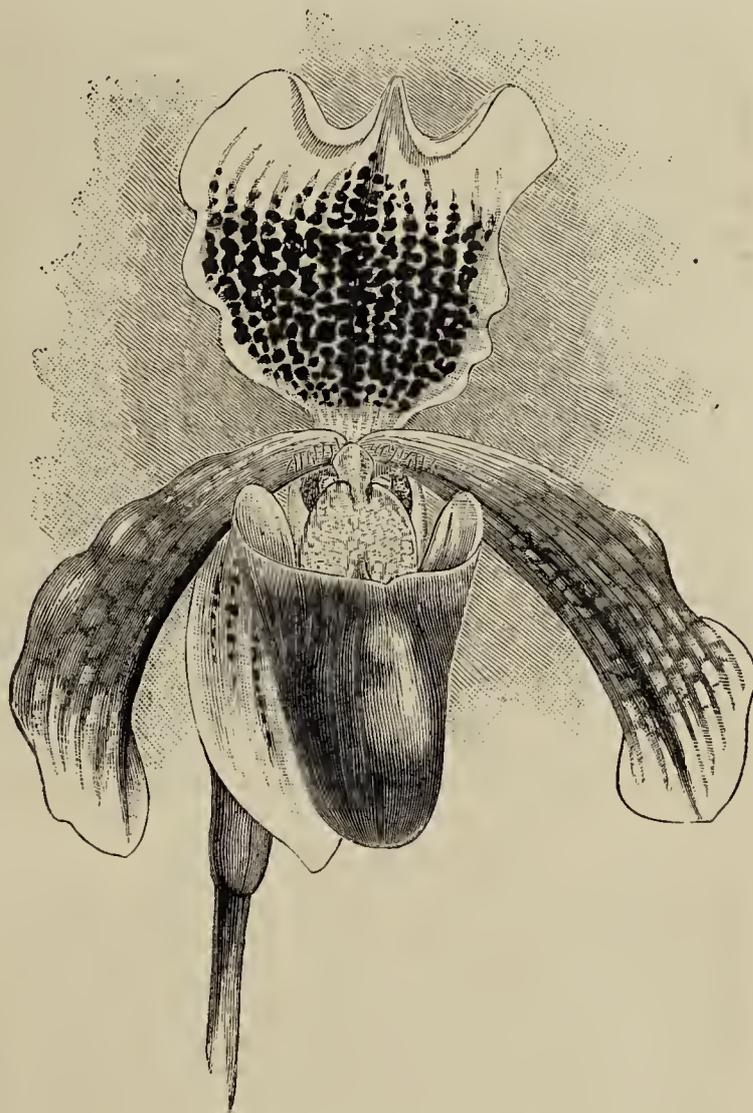


FIG. 1.—CYPRIPEDIUM GALATEA MAJUS.

at the last meeting of the Royal Horticultural Society in the Drill Hall, Westminster, when an award of merit was granted for it. The plant is a seedling which resulted from a cross between Cypripedium Chantini and C. Harrisianum, and the flowers have a fine bold appearance, quite distinct and beautiful. The dorsal sepal is edged with pure white, the centre heavily spotted with deep crimson; the lower sepals pale green, with a few spots. The petals are purple tinted, tipped with green, and the lip is of moderate size, with a polished shining surface, and of a purplish colour.—L. C.

ORCHIDS IN FLOWER.

MESSRS. B. S. WILLIAMS & SON, Upper Holloway, have the following Orchids in flower at the present time, and for mid-winter it is a surprising display:—*Calanthes bella*, *Masuca Mylesi*, *Sandhurstiana*, *Sedeni*, *Veitchi*, and *vestita luteo-oculata*, *vestita rubro-oculata*; *Cattleya Walkeriana*, *Oclogynes barbata* and *speciosa*, *Compantia macrolepton*, *Cypripediums Amesianum*, *Ashburtonia barbatum biflorum*, *callosum*, *calophyllum*, *calurum*, *cardinale*, *chloroneurum*, *conchiferum*, *concolor*, *Dauthieri marmoratum*,

Fitchianum, Harrisianum, Harrisianum vivicans, Haynaldianum, insigne, insigne albo-marginatum, insigne aureum, insigne Fostermanni, insigne Mrs. Wilson, insigne Mooreanum, insigne punctatum violaceum, Lceanum, Lceanum superbum, Measuresianum, Meirax (C. ænanthum superbum), nitens, nitens superbum, politum, Sallieri, Sallieri aureum, Schlimi, Sedeni, Sedeni candidulum, Sedeni superbum, Spicerianum, Swanianum, and Williamsianum; Dendrobiums bigibbum, Fytchianum roseum, Linawianum, and superbiens; Epidendrum cuspidatum, Lælias autumnalis and Gouldiana, Limatodes rosea, Lycastes plana alba (L. fulvescens), Skinneri, Skinneri amabilis and alba; Masdevallias amabilis, chimera Backhouseana, polysticta, and tovarensis; Miltonia Russelliana, Odontoglossums Alexandræ, angustatum, aspersum, constrictum, gloriosum, Horsmanni, Harryanum, purum, and Rossi majus (O. roseum); Oncidiums bracteatum, Forbesi, macranthum, obryzatum, prætextum, and tigrinum; Sophronitis grandiflora, Trichosma suavis, Vandas Amesiana (very large flowers), suavis, tricolor, tricolor formosa, and tricolor superba; Warscewiczella discolor.

CÆLOGYNE CRISTATA.

A DESERVEDLY popular favourite, and it might well be often grown in quantity. A plant or two are grown in the majority of gardens where fifty would not be too many. The price is certainly not high, though large and well grown specimens will fetch good value. There are several varieties of the type. For instance, we have Chatsworth, Trentham, Lemoniana, and maxima varieties besides the ordinary cristata. Of course the latter is the cheapest, but where possible they should all be grown, as they prolong the season. Maxima is a noble variety, and in a few years' time when the small plants now in gardens grow into fair-sized specimens they will have a grand effect. In many gardens they are grown in too cool a temperature. They will certainly grow in a cool Orchid house, but they thrive far better in an intermediate house, and this is the temperature they must be grown in if pseudo-bulbs are expected the size of fowls' eggs, with several flowers to a spike. Our plants are now showing flower spikes abundantly, and are kept dry, as if too moist the spikes are apt to damp. Sufficient water must be supplied to keep the pseudo-bulbs from shrinking. As the spikes advance more water must be applied, and after flowering again keep them dry until the new growths appear. Water may now be more freely applied, and as the long days appear water must be given abundantly, watering overhead twice a day. Keep the plants near to the glass, but shade from strong sun. Towards the autumn, say at the commencement of September, they will be benefited by a little more heat to finish their growths and swell out the pseudo-bulbs. All this time we place our Cælogynes in a plant stove, in which position they finish well. Once in two or three years is often enough to repot the plants, but if the compost should be sour repot at any time. Cælogynes do not like to be disturbed too much, but they should not be allowed to suffer from the want of root space.

SOPHRONITIS GRANDIFLORA.

A little gem for winter flowering, and we have several specimens with from six to twelve flowers each. They are useful for buttonholes at Christmas time. These I think are grown too cool as a rule. Our plants are in the cool Orchid house during the spring and summer months, but during the autumn and winter are placed in an intermediate house along with the Cælogynes. In this position the flowers come larger, and are also of better colour. The plants should be grown in small baskets or shallow pans. Ample drainage must be provided, and the compost should consist of two parts of fibrous peat and one part sphagnum, with small pieces of charcoal. Very little of this is necessary, but what there is must be pressed firmly in the pans.

PHAIUS GRANDIFOLIUS.

In the interesting notes on Aldin Grange Gardens, Mr. Lewis Castle mentions what fine results Mr. Jenkins has had with this interesting old plant, and I can fully endorse what he there says. I fancy there must be a revival setting in, as until lately this plant has been rarely mentioned. It is a great favourite of mine, and last season we had it very fine, when it was greatly admired by the ladies. We have specimens now with a dozen spikes throwing up vigorously. When in bloom it may be placed in the conservatory, and may also be placed in the house without any ill effects.

WINTER-FLOWERING CALANTHES.

These are now in full beauty, and well they repay the trouble bestowed on them. We have had between 300 and 400 spikes from 3 feet to 4 feet in length, and most useful we find them, especially for the decoration of the dinner table, when they have a telling effect. The culture has been given lately by various correspondents, so probably it will not be necessary to refer to it here. But there

is one point which I cannot understand which some cultivators dwell on, and that is to water until the spikes are fully expanded. Now, according to my experience, this is bad practice. Our plan is to reduce the supply when the spikes are 10 inches or so in length, and by the time the first flowers open to stop altogether. For four seasons we have followed this practice with larger pseudo-bulbs; and consequently longer spikes following. This does not look like degenerating.—A. YOUNG.

CYPRIPEDIUM INSIGNE.

PLANTS that were assisted to make their growth early in the year are now past their best, and are being removed from the conservatory. Their places are being taken by plants that have been grown cool until the flower spikes were visible, when they were aided by gentle heat. These do not flower so profusely or carry such fine blooms as those assisted by heat to make their growth early in the year. Cypripediums that have flowered should be kept cool or in a similar temperature to that maintained in the conservatory until near the end of next month, when they may be started into growth in a vinery or any structure where the temperature to commence with will not fall below 50°. If started at once the plants finish their growth too early, and the flowers appear at a season when they are not really wanted. The plants may be examined, and what top-dressing is needed may be done as they are started into growth. Repotting will not be requisite until the roots have commenced activity.

CYPRIPEDIUM VENUSTUM.

Although the flowers are less conspicuous than those of *C. insigne*, this plant is useful for the conservatory at this season, or to follow *C. insigne*. The dark foliage is very ornamental amongst other flowering plants. Large pans well flowered look well where suitable positions can be found for them. Pans of this plant in flower are stiff, and if care is not used they destroy tasteful arrangements. We invariably arrange large pans near the end of low stages and elevate them on 6 or 8-inch pots, and then surround the pan with small Ferns—just to hide the pan—from amongst these, small plants of *Odontoglossum Alexandræ* look well. If these are not to hand a few Duc Van Thol Tulips; a few sprays of Lily of the Valley in small pots are not out of place.

CYPRIPEDIUM VILLOSUM.

This is one of the best for conservatory decoration, and follows capitally the two that have been named. The flowers are just visible, and the plants can be retarded or pushed forward according to requirements. Hitherto we have found that this variety is most useful in flower about the end of January, and in structures where the temperature ranges 45° to 50° the flowers last fresh for nearly three months.—ORCHID GROWER.

THE GARDENERS' ORPHAN FUND.

THE last meeting of the Committee for 1889 took place at the Caledonian Hotel, Adelphi, W.C., Mr. George Deal in the chair. The minutes of the last meeting having been read and signed, the following sums, among others, were announced as having been received during the past month:—From Mr. G. W. Cummins, The Grange Gardens, Wallington, Show of Chrysanthemums, box £1 19s.; Croydon Chrysanthemum Society, £1 1s.; Isle of Thanet Chrysanthemum Society, per Mr. Millar, local Secretary, 13s. 2d.; Mr. Chapman, gardener to H. W. Robinson, Esq., Romford, Show of Chrysanthemums, box, 13s.; Mr. C. Gibson, Morden Park Gardens, Mitcham Chrysanthemum Society, 9s.; Mr. Searing, Sevenoaks, donation from Gardeners' Mutual Improvement Society, £1; from Mr. Henry Deverill, seedsman, Banbury, box in office, £3; Mr. R. Scott, Broadfield, Yorkshire, Show of Chrysanthemums, £4 0s. 2d.; young gardeners, The Grove, Stanmore, fees to botany class conducted by Mr. J. Odell, who gave his services gratuitously, £3; Ancient Society of York Florists, proceeds of a floral service at one of the churches, and sale of flowers at Chrysanthemum Show, per Mr. J. Lazenby, £10; Ealing Gardeners' Mutual Improvement Society, proceeds of concert, per Mr. C. Chadwick, Secretary, £20 2s., with the request this sum should be divided into four portions of £5, and life subscribers' votes given to Messrs. E. Chadwick, G. Cannon, E. Fountain, and A. Wright. A letter was read from Mr. W. Richards in reply to the letter of condolence sent to him by the members of the Committee at their last meeting, expressing his grateful thanks for their expressions of good-will and sympathy. A letter was read from Mr. Gleeson, Clumber Gardens, announcing that in addition to a few private subscriptions, the amount realised at the recent concert at Worksop, and stating the intention of the promoters to make the sum up to £60, and place a child from that neighbourhood upon the Fund for the space of six years, under the terms of the rule permitting that privilege. Mr. J. Brown, The Gardens, Great Doods, Reigate, wrote that the Reigate and District Chrysanthemum Society having made a profit of £100, had resolved to present £50 each to the Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution. The Hon. Secretary, Mr. A. F. Barron, announced that the Fund had been granted a benefit

performance at the Theatre Royal, Covent Garden, and tickets could be had admitting the holder to a morning or evening performance on any day between the 3rd and 14th of February inclusive. A cheque was drawn for the quarter's allowances to the children enjoying the benefit of the Fund, amounting to £61 15s. A vote of thanks to the Chairman closed the proceedings.



A REVIEW OF THE PAST SEASON.

TAKEN as a whole the past season must be classed as one of the best of recent years. When we consider the number of exhibitions that have been held in such a short space of time it indicates how the interest is increasing in the cultivation of this popular flower, and we hear of increased financial successes, a sign that the public appreciate the efforts of societies and exhibitors.

I do not remember a season for the last ten years where there was so much keen competition for the prizes offered in various parts of the country. During the latter part of the season, say from the 12th of November until the end, it cannot be said that the incurred blooms staged were quite up to that high standard of excellence which we would like to see. There are two reasons to which I attribute this defect. In the first place, and perhaps it is the more serious of the two, the great loss of fine blooms, notably in the Queen family, through an early flowering season, and by what is known and feared amongst growers as "damping." Unfortunately, many cultivators were so situated that the late date of some important exhibitions was quite unsuited for the stage of their flowers, which was unavoidable after it was known that an early season was likely to ensue. I know of several northern exhibitors who were quite put out of the running by the early season and late dates of the exhibitions, who would otherwise have been strong had the shows been held but one week earlier. Under those circumstances such growers were placed at a disadvantage. At the same time this cannot be advanced as an excuse for non-success. More credit certainly is due to the cultivator who timed his plants in such a manner that he was enabled to hold his own in competitions where he entered. I have thought for the last two or three years that northern societies fixed the dates of their exhibitions one week too late, and I am more than ever convinced of this after the present year's experience. In this I am speaking with the concurrence of officials of some northern shows. I know that circumstances work against wishes in some instances, such as being unable to obtain the regular place of exhibition at given dates; but where such difficulty does not exist I think societies would gain by trying a date one week earlier. So often do we hear the remark from exhibitors, "If it had only been last week, I had such blooms of so-and-so (quoting their names); but, alas! they are gone." Every year the seasons seem to be earlier and earlier, that a few years since to talk of an exhibition in October would have been considered absurd, but now capital ones are held during that month. Indeed, at the first show I attended this year there were blooms of some sorts better than I have seen all the season through.

The second reason which I consider caused a defect in the stands of incurred blooms is that owing to there being so many shows at about the same date sufficient time is not given to the preparation of the blooms requisite to present them in the best condition. Exhibitors are naturally anxious to secure as many honours as possible in a short space, but I think many will agree with me that the blooms suffer somewhat on this account. In conversation with a first prize winner at a large northern exhibition I said, "If your blooms were a little better finished they would be improved." The answer was, "We had not time to spend with them properly. There was another stand of blooms to be prepared for so-and-so, and we could not do it."

The blooms in the incurred section at the northern shows did not present such neatness and finish as those staged at the southern shows, which, owing to being so much earlier, gave the southern exhibitors an advantage in point of freshness of considerable value in the case of incurred blooms. Blooms, although large, yet rough in character, many with defective centres, do not present that pleasing appearance and quality as do medium-sized, better formed, and consequently smoother specimens; it is these latter which find most favour both with the public and judges alike. At the early shows the incurred gave great promise, but the sudden attack of damping which made itself felt after November 8th prevented the early promise of an exceptionally good season being fulfilled.

The Japanese section did not suffer in the same proportion through the same cause. They have been well shown all through the season, being large, well coloured, and generally well staged. In some few instances the reverse has been the case. The blooms have been placed much too low on the stands, which is a great mistake; the blooms lose so much in appearance, as they do not then exhibit their full size or form. Such standard varieties as *Boule d'Or*, *Avalanche*, *Ralph Broeklebank*, *Criterion*, *Jeanne Délaux*, and *Mdme. Laing* have maintained their position. *Edwin Molyneux* and *Mdme. C. Audiguier* have been

seen in nearly all the leading stands, though perhaps of not quite such good quality. The slight falling off in the case of the former I attribute mainly to the early season and the late dates of the shows.

During the early part of the season the "Queens" were shown in capital condition, being large, well built, good in colour, and neatly staged, but later on, owing to the prevalence of damp, which causes serious injury to the florets, especially the lower part of the flowers, they were somewhat rough and in some instances very stale on the exhibition table. *Princess of Wales* and its sports, especially the newer ones, have come out remarkably well, maintaining their position as flowers of the first order of merit. Anemone flowers, especially the large show section, have been well and numerous staged, not that large size has been the main point; the fullness of the centre or disc, the chief point in Anemone flowers, has been remarkably well developed. The same praise cannot be bestowed on the Japanese Anemone section, the majority of the blooms exhibited lacked what the show kinds predominated in—full centres. A poor object indeed is a Japanese Anemone bloom with little or no centre, the thinness of the ray florets in some cases seems to aggravate the appearance of thin-centred flowers. The one variety above all others which three or four years since was looked upon as being the ideal Japanese Anemone, is now the most defective in this respect; I allude to *Fahian de Mediana*. Can it be possible that the constitution of this variety in wearing out, the stock needing a rest and a restitution of its strength by planting out in the open for a season or two? Perhaps this is the reason why so many badly coloured blooms are nowadays to be seen. With a few exceptions the blooms belonging to the reflexed section have not been exhibited in quite such good form as they were two or three years since. Although they have been even in size, fairly good in quality, they have not been well developed, thus lacking size and depth of petal, the latter a great point in a reflexed flower. One improvement in the staging of this section I am pleased to see is the gradual withdrawal of varieties which cannot be strictly classed as reflexed flowers of the correct type; for instance, *Magdeleine Tezier*, *Garihaldi*, and the like, which have a habit of incurving the tips of their florets instead of imbricating them, as in the case of such true examples as *Cloth of Gold* and *King of Crimson*.

In the north of England and Scotland, too, it is surprising what little interest is taken amongst cultivators in these three last mentioned sections. The incurred and Japanese families appear to absorb nearly their whole attention, although I noticed an improvement in the reflexed and show Anemone classes at Liverpool as compared with last year even. At York and Edinburgh they were especially poorly represented. I presume it is merely a want of interest in these sections on the part of the growers which prevents their being seen in better condition. Perhaps I ought to except Hull in my complaint, as there were at that Show one or two good stands of Anemone blooms, the winner in this class being noted for this section, which points more strongly than ever to the fact of want of interest being the true cause of defective blooms.

Pompons or Pompon Anemone varieties receive but scant attention in the north, which is a pity, as they add variety to an exhibition. Even the first prize stand at Hull fell short of what is to be seen at metropolitan exhibitions, not that I regard size as the standpoint of quality in a Pompon, I look upon form characteristic of the variety, avoiding all advances to coarseness, as in that manner I think the true Pompon is spoilt; full, close petalled blooms are what I like to see, which was the case of many of those in the stand in question. The only fault I could find in that was a lack of evenness. I did not see a stand of blooms worthy of the name, nearly all were badly staged, being cut with much too short a stem to each, rendering them short of foliage, which is just what is needed to give them a good appearance. In some cases they were placed in threes hard down on the stands, which gave the blooms a cramped appearance. There appears to be a lack of variety also, of which there is no necessity, as there is abundance of material in that direction. It is only the want of interest to be more keenly displayed I am sure, and then we should see these classes as well represented in the north of England as they are in the south.

It will be seen that my whole remarks apply to the cut blooms simply for the reason that a much greater interest is taken in this part of Chrysanthemum culture than any other, the remainder I hope to discuss in another issue.

DATES OF SHOWS.

I notice that there is an evident disposition amongst societies to lose no time in fixing the dates of their exhibitions for 1890. I am pleased to see this, as it shows a wish to avoid clashing with each other where such clashing of dates would interfere with the success of those concerned. It does seem a pity that societies, or their responsible officials, should not endeavour to steer clear of each other wherever it may be practicable. I am well aware that circumstances leave little choice sometimes, such as the inability to secure their recognised place of exhibition for a desired date. I note that the two most important societies in and near London, the National and Kingston, are both fixed for the same dates. As far as I have been able to judge during the last half dozen years it matters little whether the dates be the same or not, because both Societies have ample supporters for insuring fine exhibitions. Societies have their own affairs to consider, independently of others, but where arrangements can be made amicably with each other it is well such should be done. Where the dates can be given

thus early, it allows others the means of arranging their dates in accordance. Portsmouth has chosen November 5th, 6th, and 7th; N.C.S. and Kingston, the 11th and 12th; while Birmingham is fixed for the 12th and 13th, one week earlier than usual, and I have no doubt of the wisdom of the step. When an early season like recent ones is experienced, it is wonderful what the delay of a week will do towards damaging the prospects of an exhibition. On the same dates as those chosen for the noted midland counties Exhibition will be held the Bournemouth and Croydon Shows. But how can the same date be equally good for the blooms in such widely separated districts? Surely they are a week earlier in the south than in the midlands. Already healthy signs of activity appear in the western and south-western counties for the coming November. Torquay, Taunton, and Exeter are planning their arrangements for dates early in the month of November—a commendable arrangement, evidently, when the warm nature of these localities is taken into consideration.—E. MOLYNEUX.

NOTES ON PLANTING.

WE often gain as useful instruction from the results of bad practice as from details of the most perfect operations or the most scientific bearing of a question relating to the operations of the gardener. Indeed, were we candid enough to avow our errors and record them, I am not sure if that would not be, at times, the best portions of our instructions. At any rate I shall here record, in the first place, how I was first taught to plant a tree. A hole being made large enough to hold the roots, and as deep as would allow of the tree being planted as far in the ground as it formerly stood, the roots were spread evenly on the bottom, and then a few spadefuls of soil thrown over them; the tree or bush was now shaken up and down and, may be, sideways, in order that the soil should crumble down among the roots; a few more spadefuls thrown in, and another shake or two, and so on till the hole was kept full; then two or three stamps with the foot were given, to steady the plant, and this barbarous work or mischief—which you will—was finished. Let us now analyse this process from beginning to end, and see what we can make of it. In the first place, the hole was large enough to hold the roots without cramping or twisting them round it; so far so good, but it ought to have been larger—even if it had been in a piece of garden ground that had been dug and trenched times out of mind—in order to allow the new formed roots to pass on in straight lines, instead of having to grope about for a free passage, which probably they would soon find in this garden ground. But let us suppose the planting to be done in a new piece of ground that had not been disturbed for years, and the case is very different. How the young roots are to escape from a confined space in such hard soil is more than what many planters can tell, or even guess at; and yet this is not the worst part of the tale. The roots were spread out regularly, that is, not one of them crossing another, but drawn out from the stem like lines—nothing could be done better; then a little mould was thrown over them—all right and proper too; but now we are ordered to shake the tree, to let the soil fill in among the roots. You pull it up gently, it is true; shake it two or three times, and then let it down in its place again, and the mischief is accomplished. How? You can't see it. Of course you cannot—it is below the surface; but can you not perceive that, when you pulled up the plant to shake it, all the roots followed, and, on a moderate calculation, were thus displaced full 6 inches; that is, the points are 6 inches nearer the centre of the hole than they were when we laid them down? Every one of them must have been doubled up into loops, as they could not be pushed forward into their former position through the soil, unless they were made of cast iron, or something else that would not yield; or, if they are brittle, as many roots are, they would snap like glass sooner than they could be pushed back through the soil into their former places; and thus many an honest man laid the foundation of bad diseases in his best shrubby plants—rendering them liable to the attacks of insects—to be covered with moss and lichens, and all other casualties to which sickly or stunted plants are liable. I could instance a lot of young Thorns that had been planted twelve years since after this fashion, that have not yet made 6 inches of young wood, and, to this day, they look the pictures of misery and bad management. But I have said enough to warn the young planter against this way of planting, and now let us see how the thing should be done.

If the soil is at all dry at the bottom, no matter how poor it may be, it should be stirred or trenched 3 feet deep for garden planting—that is, for ornamental trees and shrubs, and for hedges. In the case of single plants, where a pit or hole is only required, the narrowest diameter ought to be 4 feet, and if the bottom soil is poor it should be removed and some added instead; but loose soil of this description will subside in time, and if the plants are tied to stakes, as many need be to keep them firm the first year or two, the sinking of the soil from under the roots may cause them to strain, or otherwise injure them by cracking and letting in the dry winds to them. Another evil is that when trees thus planted sink down gradually additional soil is placed over the roots to make the surface level, and this is equivalent to planting too deep in the first instance, and deep planting is always to be avoided. Therefore the loose or new soil beneath the roots ought to be gently pressed down, and the pit filled up to near the surface of the ground, or say to within 3 or 4 inches of it, so that when the tree or bush is planted the surface of the pit will appear a little mound several inches above the surrounding surface. Some good planters make mounds much higher to allow for settling, but I prefer pressing the bottom soil in the first instance. One might say of this, Why loosen it at all if you press it

down again? The reason is to have a perfect drainage under the roots, and to encourage the strongest of them to run deep in the ground, which will give the plant greater vigour. We plant fruit trees shallow and on hard bottoms to prevent their getting too luxuriant, but in gardening for ornamental trees the more healthy and vigorous we can grow them the more ornamental they will be, unless, indeed, they are rather tender for our climate, in that case shallow planting on a solid or unloosed bottom suits them best, as they cannot grow so strong, and will therefore ripen better.

All this being understood and settled, let us plant a moderate sized bush to begin with—say a Portugal Laurel, for instance; it has been well taken up, has some long bare roots and a host of small fibres, with a considerable ball of soil attached close up to the bole or bottom of the plant; this ball we place in the middle of the prepared pit, and we find that the ball is so thick that those strong roots cannot lie down level on the surface, but “ride” or hang loose some inches above it. What is to be done with them? Hook them down to the surface, or lower the bottom of the hole? No, that would be bad planting again. We must fill in the loose soil under them, that they may lie in their natural position, and in doing that the small fibres are pressed down too much perhaps; if so, loosen them back again, and fill in any cavities under the bole or main roots. We shall now suppose that the whole under-surface of the ball is resting on the soil, and also all the roots, great and small, and each of them branching out in straight lines, or as regular as they can be placed. Some of the lower ones will be out of sight, but the majority are still in view. If we had a little better soil from a compost this would be the proper time to throw it over the roots; not at random, however, for fear of displacing the fibres. Take a spadeful, and throw it past the stem of the plant on the roots on the opposite side to you, so that the soil runs along in the same direction as the roots. If you throw it on the roots next to you it will run against their direction and turn back their small points, which would be nearly as bad as the old way of shaking the plant up and down at this stage. When all the roots are covered an inch or two the watering pot must come, with a large rose to it, and you must water all over the surface heartily, even if it is a rainy day. This watering is to do the business of the old shaking—settle the finer particles of the soil about the roots; the rest of the soil, to the depth of 4 or 5 inches, may be thrown on anyhow, if the lumps are broken small, so that the surface is pretty smooth, and formed into a shallow basin to hold the future waterings. A stout stake, or stakes, according to the size of the plant, should be driven down before the earth is put over the roots to tie the plant to.

All that occurs to me farther on the subject is that when large bushy evergreens are to be removed their branches must be tied up towards the stem by passing a rope or strong cord round them before commencing the roots. When you come to a very large Portugal Laurel or a common Laurel, or indeed any very large shrub that has overgrown the space allotted to it, and it is so far encroaching on other things that it must be removed in some shape or other, what is to be done with it if it is too big to remove? A plant 50 yards round is no joke to transplant, and I know one as large. Cutting back the longest branches will keep it in check for many years; but that is not the point, but that this very large plant must either be cut down and grubbed up for the wood-yard or be transplanted.

All gardeners have met with such cases, and no doubt disposed of them easily enough, but I have a new method of dealing with such as cannot be transplanted, which I have adopted for some time, and which promises to be the best hit I have made for many years. It is to cut them down to within a couple of feet of the ground. I have tried spring cutting, but it does not answer half so well for the purpose. When the stumps begin to shoot next April they are cut close to the ground, and soon a host of strong suckers will spring up as close together as those of a Raspberry bush. After a while, when they are strong enough to bear handling, you begin to cut out the weak ones, till the whole have room enough to grow away freely, which they will now do in earnest, and as straight as fishing-rods or gun-barrels. I have seen strong shoots from a common Laurel stool of this kind reach up to 10 feet in one season, and they often attain from 6 to 8 feet. Now, what I propose to do with these strong suckers is this—to make clean stemmed trees or standards of them. Many attempts have been made to obtain fine standards with clean smooth stems to them of our more common bushes with various degrees of success. The Portugal Laurel treated thus is a good imitation of the fine standard Orange and Lemon trees of Italy, and the common Laurel is not much behind it. Any of the varieties of the common Phillyrea may thus be made to imitate the narrow-leaved Myrtle of the south of Europe, while the common Alaternus might be mistaken at a few yards' distance for the broad-leaved Myrtle, if reared up on a 5-foot standard with a close circular head, and to imitate the Olive as a close-headed standard take an overgrown old Privet plant, cut it as above, and you will soon have a dozen of them. I have seen for this purpose whole Portugal Laurels stripped of their side branches up to 5 or 6 feet high, and the tops formed into circular heads, but the wounds and scars left on the stem—unavoidably, it is true—where the great side branches were lopped off were most hideous to my eyes, and so ungardening-like that I would as soon live in a desert as be surrounded with such ugly and haggard-looking objects.

But to return to our suckers, from which these very handsome imitation plants are expected. As soon as they are from 5 to 7 feet high nip off the points to stop them, and the next half dozen buds below will start into side branches, which are to form the foundation of the future standard, therefore see that they are at proper distances from each

other. The situation of the buds will determine this before any branches are formed, and if the buds are too close together disbud them, so as to allow room enough for the future branches. If any side shoots are made lower down, either after stopping the points or before, they must be nipped before they form one joint, and only the leaves from which they issue left. All the leaves on the stem from top to bottom are left on the first season, but no side branches allowed, except the few at the top, to form the head. When the young wood gets firm, say about August, you may begin to cut out the buds, beginning at the bottom and going up progressively as the wood ripens, so that by the end of the first growing season all the buds on what is to form the future stem are entirely got rid of. This is the most essential part of the whole process, but the buds ought to be extracted—yes, that is the right word—extracted without injuring the leaves, for unless the buds are taken out with their roots, so to speak, depend on it they will trouble you afterwards by throwing out strong side branches; but once extracted from a one season's growth no tree, I believe, has the power of renewing them a second time. These suckers may be safely left attached to the mother stools for three years or more, for they will acquire more strength and come sooner into use that way than if taken off sooner. Any time during the spring of the second season a ring of bark, about 2 inches wide, must be taken off the bottom of these suckers, and the lower down the better; then, when these wounds are perfectly dry, and the upper edges of them begin to swell by the formation of new wood, and not before, you may earth up some good soil all over the old stool, till it is 4 or 5 inches above the ringed parts. Roots will immediately issue from the swellings of these rings, and so form you a tree "on its own bottom." By the help of these roots and the connection with the parent stock very vigorous healthy young trees are formed in less time and more handsomely than by any other process known to us, and in separating them from the stool work your way to the ringed parts and cut through them with a small saw, and this you may do twelve months before you finally remove your new standard.—D.



LAST week we had the pleasure of greeting our readers with the good old wish with which so many are familiar at Christmastide: this week we add the no doubt equally ancient and not less pleasant refrain—
A HAPPY NEW YEAR TO ALL.

— **EVENTS OF THE WEEK.**—On Monday, Jan. 6th, the National Chrysanthemum Society's General Committee will meet in Anderton's Hotel at 7 P.M., and the same Society's midwinter Exhibition will take place on Wednesday and Thursday, January 8th and 9th, in the Royal Aquarium, Westminster. A conference of Chrysanthemum growers is also being arranged for Wednesday afternoon.

— **THE WEATHER IN THE SOUTH** has been somewhat colder, with frequent frosts and slight snow on several nights. Around the metropolis frosts and fogs have been prevalent, the latter on two days (Sunday and Monday) being exceptionally dense even for London, causing a remarkable darkness, which on Monday continued the whole day. In low districts 12° and 14° of frost have been registered.

— **THE WEATHER IN THE NORTH.**—The weather during the last fortnight has continued extremely variable. Some snow fell between December 21st and 22nd, and laid for a day. Frost of 5½° has occurred. Throughout the night of the 25th the thermometer stood at 45°; at 9 A.M. on the 17th, at 51° Fahr.; a gale of wind followed within forty-eight hours. Generally mild and drizzly weather has been the rule.—B. D.

— **PRESENTATION TO MR. HALLIDAY.**—The young gardeners at Alton Towers, as a token of the great respect they had for Mr. Rabone's foreman, Mr. Halliday (who served nearly five years in the above capacity), presented him with an address and writing case on his appointment as gardener to Lady Forester, Meaford Hall, Stone, Staffordshire.

— **GARDENING APPOINTMENTS.**—Mr. Richard West, late gardener at Preston Hall, has been appointed head gardener to Bazley White, Esq., M.P., Genning's Park, near Maidstone, Kent. Mr. W. Hagon, for the last twelve years head gardener to James Skinner, Esq., Bramley Hill House, has been reappointed head gardener to A. H. Knight, Esq., at the same place. Mr. Charles Marr, foreman, North Marine Park, South Shields, has been appointed head gardener to Mrs. Liddell, Prudhoe Hall, Northumberland.

— **GESNERA EXONIENSIS** is a useful old plant. By lamp or gas light it has a telling effect, the orange scarlet flowers and dark velvety foliage being extremely bright. During its growing season it must be placed in a shaded and moist stove, as it very much dislikes either an arid atmosphere or bright sun. It is also partial to a good proportion of leaf soil in the potting compost.

— **BEGONIA SOCOTRANA.**—This is likely to become very popular. Our plants are now unfolding their rosy pink flowers, and are very attractive. Those varieties raised by Messrs. Veitch—*i.e.*, John Heal and Adonis, of which socotrana is one of the parents, we also grow, and they are a good addition, as they form a fresh class of winter flowering Begonias. It must be understood that these remain dormant during the greater part of the summer, and also require rather severe resting. If kept out while at rest they are apt to decay.

— **IN addition to the above as WINTER FLOWERING PLANTS** there are Poinsettias, Euphorbias, Lily of the Valley, Roman Hyacinths, &c., double Primulas, Tea Roses, Marie Louise Violets, and where grown there are several other useful Orchids for blooming during the winter season. For instance, there is the old and well tried *Cypripedium insigne*, *Laelia anceps*, *L. albida*, several *Dendrobiums*, such as *D. nobile*, *D. Ainsworthi*, *D. Wardianum*, *D. aureum*, *D. formosum giganteum*, *Cattleya Bowringiana*, *Cymbidium Mastersi*, and *Zygotopetalum Mackayi*. The above are very reasonable in price, and may all be grown in the ordinary plant stove.—A YOUNG.

— **Mr. T. S. WARE**, Tottenham, sends us flowers of the **ST. BRIGID HELLEBORE**, which he considers "without doubt is the finest in the family." The flowers are large (3½ inches in diameter), pure white, of good substance, and borne in pairs on stout stems.

— **PRESENTATION TO MR. A. D. CHRISTIE.**—At a recent meeting in Warwick Mr. A. D. Christie, who was for many years head gardener at Warwick Castle, but who has now entered upon an engagement of a similar character at Ragley Hall under the Marquis of Hertford, was presented at the Court House with a purse of gold and an illuminated address by residents of Warwick with whom he has so long been associated. The Mayor (Alderman Cooke), who made the presentation, presided, and there were also present Alderman Stanton, Major Mason, Messrs. R. Laurie, Lloyd, Evans, R. Greenfield, Hammond, Wilson, Payton, Hotchkiss, and many others. There were 120 subscribers to the fund.

— **MESSES. FOSTER & PEARSON** desire us to notice their new **BEESTON GREENHOUSE**. It is portable, and so designed as to be erected by any handy man. The roof sashes are moveable, and can be fixed in any position for ventilation, while screws or similar fastenings are not required for making them secure.

— **TOMATO MIKADO.**—I was captivated with the handsome proportions of this variety as shown in some seed lists, bought a 2s. 6d. packet of seed, cultivated the plants with the greatest care, and was rewarded with the most inferior crop I ever saw on a Tomato. The fruits were rarely smooth, the majority decidedly ugly, and all so scarce as not to pay for attention. I discarded it without the slightest regret.—J. M.

— **CHIMONANTHUS FRAGRANS.**—This deciduous shrub may be grown as a wall climber, as it shows to the greatest advantage, and succeeds the best in this way. A south wall is the best, but on an eastern aspect it grows and flowers freely. At the present time it is covered with buds, and there are a few open flowers, the fragrance from which is charming. The flowers are not very imposing, but the time of the year when they open and their delightful perfume render it worthy of a place in any garden where winter-flowering shrubs are appreciated.—M.

— **CHRISTMAS ROSES.**—It would amply repay any lover of this well known flower should he have the opportunity of seeing some excellent clumps in the gardens at Col. Clarke's, Charlton House, Shepton Mallet. They are the finest I have ever seen, and are grown on a south border, planted in a good loam. The specimen blooms which I enclose are picked from clumps averaging between 200 and 300 blooms on each plant. They are covered with a small rude frame. It is evident from their good appearance that Mr. Woollen accords them judicious treatment. [The blooms received were large and pure white; such specimens prove very useful.]

— **GARDEN BIRDS.**—I have no doubt that the birds seen by Mr. Murphy searching for insects on his Chrysanthemums were coletits (*Parus ater*). The lesser spotted woodpecker has a red head and

would not be likely to perch on anything so unsubstantial as a flower. I do not at all think that bullfinches devour fruit buds for the sake of any insects concealed in them; and as some people are sure to continue to say that they do, it would be well if some of those who have these birds in their gardens were to follow Miss Ormerod's suggestion, and send up the contents of their crops for microscopical examination by an expert.—W. R. RAILLEM.

— THE ANNUAL MEETING OF THE RICHMOND (SURREY) HORTICULTURAL SOCIETY was recently held at the Greyhound Hotel, Sir J. Whitaker Ellis presiding. The balance in hand is £28 7s. 2d. Mr. Gribble having tendered his resignation as Assistant Secretary, was presented with a handsomely illuminated address on vellum, as a mark of appreciation of his useful services during the past five years.

— WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY—An ordinary meeting of this Society was held in Ware on the 17th inst. There was a good attendance of members. Mr. R. Smith was voted to the chair. The subject for the evening was "Chrysanthemum Culture," by Mr. G. Fulford. The paper dealt with the chief points in their culture, and a discussion followed by Messrs. Brown, Wiltshire, and Pavey. The meeting terminated with the usual votes of thanks to the Chairman and essayist.

— THE PLAGUE OF RATS.—Writing to the *Standard*, "John Rodent" says:—"I beg to send you a simple means of destroying large numbers of these vermin. Fill a large barrel three parts full of chaff. Place a quantity of barley meal or other bait on top of the chaff; place a board, sloping from top of barrel, for rats to jump on top of chaff, but not to come within 6 inches of it. Rats can thus have a feast and escape. The following night fill the barrel three parts full of water, place about 4 inches of chaff to float on the top, bait as before, and in the morning you will find the barrel half full of drowned rats."

— THE DURHAM, NORTHUMBERLAND, AND NEWCASTLE-UPON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY.—We learn from the report of the Council of this important Society that the fine autumn Exhibition held on the occasion of the visit of the British Association to the city was not a financial success in consequence of wet weather on the whole of the three days. Still the receipts amounted to £519 5s. 1d. The deficiency was made up by a concert, and the Leazes Park Committee considerably waiving a great portion of the rent. The Council announce a great increase of membership, and confidently expect the subscription list will be so enlarged in 1890 that the income will meet the expenditure even in adverse weather, leaving a surplus to form a reserve fund. The receipts from all sources during the year were £1532 9s., and the expenditure £1462 7s. 11d., balance in favour of the Society £70 1s. 1d. The Society is to be congratulated on having such earnest supporters, and we trust it will have a prosperous career.

— LUCULIA GRATISSIMA.—I enclose a photograph of the above shrub, grown against a pillar in the conservatory here, covering it 20 feet high, and flowering freely from the top to the floor. The large trusses of flowers of a pleasing pink deliciously scented, with the vigorous dark green leaves, have been the admiration of many who have seen it this autumn. The plant is at least twelve years old, planted in loam with a little peat and sand, thoroughly drained, and watered occasionally with liquid manure made from artificial and stable manures. The plant is pruned at the end of January, and cut back to within a joint of where previous cut, or spur-pruned. The conservatory is large, and is heated from September to May 50° to 55° at night, and the plant is much exposed to the sun from the roof. This is the finest plant of its kind that I have seen, and is worthy of more general cultivation. We have not found the flowers useful for cutting purposes.—G. HARRIS, *Alnwick Castle Gardens*. [The photograph shows that the plant, which we remember well, is an extremely fine one, and is flowering most profusely, but it was too indistinct for reproduction by engraving.]

— MR. H. C. RUSSELL, Government Astronomer of New South Wales, has published the results of METEOROLOGICAL OBSERVATIONS made in that colony during 1887. The number of reporting stations is now 862, being ninety-four more than in 1880, the increase being almost wholly in rain stations. The arrangement of the tables, which give the most important data for each station separately, is the same as in previous years; but there are also two new tables giving the mean maximum and minimum temperature at Sydney for each month from 1856 to 1887. The mean temperature of the whole colony for the last seventeen years is 61.2°. At Sydney the mean for thirty years is 62.7°. The diagrams appended to the volume give a good idea of the weather

conditions at Sydney, and clearly exhibit the peculiarities of certain periods, such as the very short winter of 1873, and the long one of 1874, also the long summer of 1877-78, with four months of hot weather, and the short summer of 1886-87, when there was only one month of hot weather. In 1878 the lowest winter temperature occurred in June, and in 1872 in August. A comparison is made of the rainfall at the principal places in the various colonies. The contrast between the amount at Brisbane and Sydney and that at Melbourne is very striking. At the former places as much rain sometimes falls in one month as would make a year's rainfall at Melbourne. At Sydney the least annual rainfall on record is 21.48 inches, and the greatest 82.81 inches. The question of evaporation continues to receive considerable attention; the tabular results are published, with the rain and river results, in a separate volume.—(*Nature*.)

— THE WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL AND COTTAGE GARDEN SOCIETY held their annual meeting at the Lecture Hall recently, and Dr. G. Walker presided over a good attendance. The seventeenth annual report stated that both the summer and autumn shows maintained their high standard of excellence. The entries were numerous, and in all the classes the competition was fair. At the National Chrysanthemum Society's Show the Wimbledon Society won the trophy which is offered every year for competition among the forty-three affiliated societies. The report stated in conclusion that Mr. W. B. Faulkner had generously offered a challenge cup, value 15 guineas, and 5 guineas as a first prize for the autumn show, and the Committee trusted that others would follow his good example. The accounts showed a balance in hand of £2 6s. 2d. The receipts amounted to £242 16s. 10d., and the expenditure to £240 10s. 8d. The subscriptions amounted to £166 9s. Mr. A. Hutchinson thought the time had arrived when they should appoint a paid secretary. Although in this instance a dual government had worked very well, yet in nearly every other instance a dual government tended to disorder. He objected to it on principle, and moved that Mr. Lyne be chosen Secretary for the ensuing year. Mr. Neller seconded the motion, but Mr. Lyne declined the offer, observing that he would probably be leaving Wimbledon in two or three years' time. He was, however, quite willing to work jointly with Dr. Walker gratuitously if the Society saw fit to elect him again. Ultimately Mr. Hutchinson withdrew his motion in deference to the feeling of the meeting, and Dr. Walker and Mr. Lyne were re-elected joint Honorary Secretaries. Sir Edwin Saunders has presented the Society with a handsome banner for use at the annual shows.

— DOWDY GARDENS.—Some gardens have a look much worse than that of neglect; they are "dowdy." One cause for this is overcrowding. The plants have neither room, light, nor air sufficient to enable them to develop their forms of flowers. Not long since we saw a bed of Balsams of fully fifty plants in a space 1½ foot square; the owner complained bitterly because his flowers were not so fine as ours, yet our plants occupy 6 square feet each, and they completely cover the space. Plants should be thinned soon after they are started to get a strong healthy growth. Another common cause of dowdy gardens is a desire to have a little of everything in a space only sufficient to grow a few things well. Form and colour are so intermixed that the effect is destroyed; no harmony, no distinctness, simply a jumble of colour. And still we are asked to admire flowers under such conditions. As well might we call an artist's palette a picture. In the window garden the same thing is noticeable. Ten times as many plants as look well or do well, are crowded into a given space, for fear they will be killed in the garden. Better have them killed by Jack Frost than to starve them in the house or let them eke out a sickly existence. A plant is never so beautiful as when it is grown to perfection. This cannot be done if it is crowded, or in the shade of trees or walls. It is better to have a single specimen in the vigour of health and bloom than a floral hospital. A single plant of a good Zinnia will adorn a garden for three months; whatever its colour may be, there will be none other to destroy its harmony, and there is no colour but what is pleasing if it does not suffer by comparison. Plant a few things, and give them a living chance.—(*American Garden*.)

THE NAMES OF PLANTS.

IN explaining this digest of Rose statistics in the last issue of the Royal Horticultural Society's Journal, the Rev. W. Wilks has the following remarks upon nomenclature that are worth a careful perusal:—Beyond the mere clerical work the chief difficulty has arisen from varying nomenclature, and that not only with regard to synonyms, but also in regard to the very varied spelling of names. Great confusion is evidently caused by that most reprehensible practice of raisers of new

sorts, in giving to their offspring names almost identical with others already existing. For example, Mme. Eugène Verdier (H.P.) and Mlle. Eugénie Verdier, and then repeating Mme. Eugène Verdier again as a Tea! The result of this kind of naming is that "Madame" and "Mademoiselle" become completely mixed. Sometimes one is entered when the other is evidently meant, and more often we get a hybrid form of name, in either "Madame Eugène V." or "Mademoiselle Eugénie V.," both hybrid names appearing also as Teas! Other examples will at once suggest themselves—*e.g.*, Hippolyte Jamain and Mme. Hippolyte Jamain (H.P.), and Mme. Hippolyte Jamain (Tea); Jules Margottin and Mme. Jules Margottin and Mme. Margottin; Mme. Ducher and Marie Ducher and Jean Ducher; Mme. Scipion Cochet (H.P.) and Mme. Scipion Cochet (Tea); Princess of Wales (H.P.) and Princess of Wales (Tea); Prosper Laugier and Mme. Prosper Laugier; Julius Finger and Jules Finger; Jules Chrétien, an old worthless pink H.P., and Jules Chrétien H.P. (Schwartz, 1878), a handsome dark one; Souvenir de Victor Hugo (H.P.) and Souvenir de Victor Hugo (Tea); Baron Nathaniel de Rothschild and Baronne Nathaniel de Rothschild, both H.P.'s; and so on *ad infinitum*. Or is our language so poor in names that we need have two so similar as Lady Sheffield and Lady

half—which half, by the way, would do for the next new Rose—*e.g.*, Archduchess Maria Immaculata might very well be content to be simply styled "Archduchess." "Immaculata" would then make an admirable name for the next new white Rose, and we should have "Maria" over and to spare. Prince Camille hardly needs "de Roban" added, any more than Souvenir d'Elise requires "Vardon;" Princess Mary could well do without "of Cambridge;" Madame E. de Bonnières de Wierre could surely spare "E. de Bonnières" for some other flower and really not feel the loss; and the promised new Rose of 1890 might be content to submit to the inevitable, and be from the outset what she is bound to be in the end, "Dowager Duchess," leaving Duchess of Marlborough" for some future novelty. I seriously think this question of simplicity and distinctness of nomenclature is a matter rosarians would do well to lose no time in grappling with.

A GOOD MELON—THE COUNTESS.

AMONG the great numbers of Melons that were examined by the Fruit Committee of the Royal Horticultural Society last year not one



FIG. 2.—THE COUNTESS MELON.

Sheffield? Raisers might surely exercise a little ingenuity in choosing really distinctive names for their new introductions. Nor can I think the constant harping on one string, however distinguished, tends to clearness—*e.g.*, Paul Verdier, Eugénie Verdier, Victor Verdier, Mme. Eugène Verdier (H.P.), Mme. Victor Verdier, Emilie Verdier, Marie Verdier, Souvenir de Victor Verdier, Mme. Eugène Verdier (Tea), and probably several others. Similar lists might be made of Jamains, Margottins, Levets, Lyons, Lyonnaise, &c. Nor are our neighbours across the Channel alone in this, for amongst English names we have Beauty of Waltham, Glory of Waltham, Pride of Waltham, Queen of Waltham, Star of Waltham, Waltham Climbers Nos. 1, 2, and 3; Glory of Cheshunt, Grandeur of Cheshunt, Brightness of Cheshunt, Cheshunt Scarlet, Cheshunt Hybrid. What wonder if the average gardener gets altogether "mixed" with such a repetition of the dominant name! Surely one can have too much of such great Rose names as Verdier, Cheshunt, Waltham, Lyons, &c.? And might we not usefully drop at least half of the multitude of Madames and Mademoiselles, and most of the Souvenirs; indeed, all of them, except when needed for the sake of clearness? Might we not, for instance, without any disrespect or undue familiarity, talk of Alfred de Rougemont, Alphonse Lavallée, Bellender Ker, Charles Crapelet, Clemence Joigneaux, Gabriel Luizet, Norman Néruda, Eugénie Verdier, Marie Cointet, Marie Rady, Thérèse Levet, Angèle Jacquier, Caroline Kuster, Gabrielle Drevet, Admiral Courbet, Riza du Pare, &c. Some of the very long names might well drop

met with greater approval than this. The Countess, as it was exhibited by its raiser, Mr. J. H. Goodacre of Elvaston, seemed to possess a combination of good qualities, productiveness, size, appearance, and flavour being so markedly represented that all hands were promptly held up for a first-class certificate. The fruit is yellow in colour, distinctly netted, thin in the skin, thick in the flesh, which is nearly white, tender, juicy, and pleasantly flavoured. The character of the variety as it was exhibited is accurately displayed in the engraving, fig. 2, for which we are indebted to Messrs. James Veitch & Sons, who are introducing the Countess to the Melon-loving public; and persons who grow this variety as well as it was presented by its raiser will have reason to be satisfied with it and themselves.

LILY OF THE VALLEY.

MY answer to your correspondent Mr. Coombe, on page 503, as to why I prefer a substantial loam for the growth of this plant, is very simple—*viz.*, that having seen it growing naturally in such a soil, and having noticed it produce the best results, I naturally recommend such for its cultivation. Without doubt it flourishes well in a good rich

loam. Mr. Coombe's method of forcing them in cocoa-nut fibre refuse is very satisfactory, but all gardens have not the means or convenience for such a practice as Ashton Court. In a great number of places cocoa-nut fibre is considered too expensive. If the majority of gardeners had the means and conveniences of the minority foreign produce would not glut the markets to such an extent as it does at present.—A. G. F., *Whitstone*.

BOUARDIAS.

WHEN well and properly grown Bouvardias will continue to yield a succession of their flowers over a period of several months. Unfortunately they are not so well grown in private gardens as they deserve to be, though in market establishments they are well treated with the best results. The principle, however, upon which these are grown to have the majority of the flower trusses open at one time is not exactly the one that should be followed when a lengthened succession is required.

If the plants are dried rapidly death in many cases will result. Their wood is soft, and this must be hardened and ripened, then they can be dried without fear. They are similar in this respect to Fuchsias, and ripening their wood and resting period should be much the same as generally accorded, the principal difference being the temperature in which the two are kept while at rest. That for the Bouvardia should not be lower than 45°. Very few would think of drying the Fuchsia while its wood was green and soft, but quickly grown Bouvardias have been given this treatment with the results pointed out.

Bouvardias are propagated by cuttings and portions of root, and when the object is to produce good specimens in one season without resorting to express methods of culture and excessive feeding it is important to make an early start. Those I have described would have a much more limited rest than they would be allowed the following season. After the wood is thoroughly hard keep the soil dry for two or three weeks, and then prune back to within 3 inches of the base; turn the plants out of their pots, shake the whole of the soil from their roots, and remove a few of the strongest from each plant. The stock should then be placed into 3-inch pots, and transferred to a vinery or Peach house. Plunge the pots in boxes about 6 inches deep in cocoa-nut fibre refuse, leaves, or any other material, covering the surface of the soil to prevent evaporation. If the plunging material is kept moist and the plants gently syringed daily they will need no water at the roots until they start into growth. The boxes can be placed upon the pipes. Start the plants in any structure where the temperature does not fall below 50° at night, and is gradually increased. A gentle hotbed is a capital place for them. The amateur who has limited accommodation in this respect can give his plants a more lengthened period of rest, and start them in the same way as he does Fuchsias, or in a slight hotbed that may be made for raising seeds. Any plants raised in this way require two seasons instead of one in which to produce useful flowering plants.

When once a stock has been obtained it is a good plan to adopt a two-years system of raising plants. This is decidedly better even when they are required for decoration in pots or yielding flowers in succession for cutting than depending upon either cuttings of young wood or roots every season. To carry out this plan strong roots according to the quantity required should be taken from strong old plants started into growth in February. Cut these into lengths of about half an inch and strew them on the surface of boxes nearly filled with soil composed of equal portions of leaf mould and loam; scatter a little sand amongst the portions of root and cover them about a quarter of an inch deep with fine sandy soil. Place the boxes in an intermediate temperature, when shoots will soon appear above the soil. Encourage the young plants to grow, and gradually harden by the end of June, so that they can be stood outside fully exposed to the sun. The boxes will be one mass of growths. In September place the plants in a cool house and gradually allow them to rest, then keep them dry. When the time arrives for starting them into growth the soil should be shaken from their roots, and each plant placed singly into 2 and 3-inch pots. They should be pruned to good "eyes" 2 inches above the soil. The cultivator in possession of plants of this nature is a long way in advance of those who rely upon raising them either from roots or cuttings in spring.

Cuttings of young shoots root readily enough in the propagating frame in brisk heat. The shoots selected must be soft, or they are a long time forming roots. Cuttings 2 inches long will do; it is not important whether they are cut close to a joint or not, but this we usually do, and insert them with the two lower leaves attached. One joint, however, should be left on the plants from which cuttings are taken, when they will soon "break" again, and be none the worse for the removal of the cuttings. When the cuttings are rooted place them singly into small pots at once, and

directly signs of growth are visible the point should be removed. Some cultivators prefer plants raised from cuttings of young wood before those raised from roots, because they are not so prolific in throwing up from the base. A more shapely plant can perhaps be produced by the former; but in spite of this, we prefer for the object we have in view those raised from portions of roots. A strong shoot or two from the base of these by the time they are placed into 5-inch pots is the making of good plants the first season.

Whether the plants are raised from cuttings of young wood or roots or are cut-backs, they need the same treatment after they are started into growth. Those started and raised early should be kept in a temperature that does not fall below 60°, and as they advance in growth the temperature may be gradually lowered until they can be grown in cool houses or cold frames. From the first attention is needed in pinching, and the point of the shoot should be removed after each pair of leaves. This induces the formation of two shoots, which, when they reach the same stage, are again pinched. This practice is continued until the end of June. If they are to be kept under glass the whole of the season it may be continued until the middle or third week of the following month. When suckers spring from the base they are pinched at the first pair of good leaves they make, and then are treated the same as the remainder.

The question arises at this stage whether they are to be planted out or kept in pots. At one time the luxuriant growth that they made tempted the recommendation of the former method. They do very well, and flower well in some seasons; but the strong growth is misleading, and however carefully they are lifted they are seriously checked. We strongly advise keeping them in pots and plunging in an open sunny position until September. When the nights have a tendency to be cold the plants should be placed in a light airy structure at first.

Bouvardias should be repotted from time to time as they need more root room, giving them their last shift when plunged outside. If raised from cuttings early they may be placed in 30's—4½-inch—in May, and those from roots into 5-inch, which are large enough for the first season, while cut-back or two-year-old specimens raised in boxes may have 6-inch to 8-inch, or even larger pots. When they are large enough at starting time for 5-inch pots one other shift only is given—namely, into 8-inch. In fact, all plants that are cut back, except very small examples, are only shifted once to save labour.

The pots must be carefully drained, and the soil should only be moderately firm at first, and it may consist of the loam used for Cucumbers and Melons with the addition of about half leaf mould and sand. Failing this some that has been stacked with the same additions is excellent. At the final potting one-third leaf mould only need be used, and the soil may be pressed firmer. Take care that they do not become root-bound while in small pots, for this has a tendency to check and harden their wood prematurely and tells against full development of the growth.

Supply water carefully after the plants are started, and again after they are repotted. Once the soil is well filled with roots liberal supplies should be given them. From the time they are started until they have ceased flowering the soil should never be allowed to become dust dry. If this takes place their fine roots are scorched. When the pots in which they are to flower are filled with roots weak soot water in a clear state may be given every time water is needed, and then this and liquid made from cow dung alternately. If the latter is not at hand artificials once a fortnight may be applied to the surface of the soil. The syringe from the first may be used daily or twice a day, according to the weather, and continued for a time after the plants are housed and accustomed to the change.

The treatment after they are housed is simple. They need plenty of light and air at first; after a few weeks the latter can be dispensed with, and a temperature of 55° to 60° maintained according to the weather. Not only will terminal trusses be produced, but the strong shoots that extended from the time pinching ceased will break again into growth and continue to yield serviceable flowers. This cannot be expected from plants that are grown rapidly and the wood is practically soft at flowering time. Plants such as I have described can, after they cease flowering, be gradually dried and kept as dry as it is wise to keep Fuchsias without the slightest fear of losing them.

The following are amongst the most useful:—Doubles.—Alfred Neuner, white; President Garfield, blush or pink; Hogarth fl.-pl., scarlet. Singles.—Scarlet, President Cleveland, the brightest of all; Hogarth, Dazzler, Elegans, Flavescens, yellow; longiflora flammea, blush rose; Priory Park Beauty, pink; Queen of Roses, bright pink. Single whites.—Humboldt, corymbiflora, Vreelandi, The Bride, not quite pure white; jasminiflora, true; and alba elegantissima.

If six only are needed select the first, second, fourth, tenth, twelfth, and thirteenth.—WM. BARDNEY.

PRESERVING PLANTS IN WINTER.

WE are now in the midst of the worst period of the whole year for preserving plants, and if they can be successfully kept for the next six weeks or so they will give little trouble afterwards. With plenty of well heated glass houses all plants may be wintered as easily as they are retained in summer, but unfortunately instances of commodious and efficient accommodation are exceptions, and the great majority of growers, especially of the amateur class, are frequently at their wit's end as to where to store and how to preserve their tender plants. But it is not so much particular storage as the exercise of care that will insure success. I have known many bedding and other plants wintered in peculiar and what might be termed unsuitable places. It is a mistake to give store or stock plants too much heat in winter. This keeps them growing when they ought to be resting, and the more they grow in midwinter the more tender they become, as there is nothing substantial in the growth formed now. They ought to be well hardened by the end of October, and kept in that condition. Cold, short of actual frost, will rarely harm any plant, provided the foliage and atmosphere are dry. This is the great secret of successfully preserving all plants in winter.

Our Orange trees, which are wintered in an unheated house, would suffer severely from excessive damp were it not that the greatest care is exercised in watering, and they are kept decidedly dry at their roots. Some of them do not receive any water for four weeks at a time, and it is astonishing how luxuriant they remain. Through the deficiency of pipes in the Pine house the temperature is frequently down to 35° or 40° in winter, and rarely rises to 50° with artificial heat, and if kept damp at the roots and top in this low temperature they would soon become yellow and sickly, but by withholding moisture as much as possible they remain in fine health all winter. Store plants are rarely active at this season. They do not make any great demand for moisture, the natural condition of the atmosphere is generally sufficient to retain all their qualities, and in nineteen cases in every score deterioration is the result of superfluous moisture in the atmosphere, and especially at the roots. Whenever plants are going wrong let this point be considered at once, and it must never be forgotten in after treatment. I would rather winter plants in a temperature of 40°, and with a dry atmosphere, than in 60° and have damp to contend with.—J. MUIR.

USEFUL FERNS.

ALTHOUGH Ferns of all kinds are beautiful, yet, like other plants, some species and varieties are better adapted for decorative work than others, and in the following lists I have mentioned those that I know from experience to be useful for that purpose, as it is much better to work up a stock of a few useful sorts than to grow a greater variety, many of which perhaps are not adapted for decorative purposes; but I wish to make it clear that I do not write disparagingly of forming collections of every species and variety obtainable, as a thoroughly representative collection is always interesting, but as many varieties which are very pretty and thrive well in ferneries are quite unfit for decorative purposes, much more satisfactory results are obtained by growing in quantities those that possess the good qualities necessary.

Among *Adiantums*, *Bausei*, *concinnum latum*, *cuneatum*, *formosum*, *macrophyllum*, and *Sanctæ Catherinæ* are all extremely useful, the two last-named being distinct, and are not so much grown as they should be. *Davallia elegans* is one of the most beautiful of all basket Ferns. *D. Mooreana* and *Goniophlebium subauriculatum* are also good for that purpose; the last named, having fronds 6 or 7 feet long, should only be used when there is plenty of room for development. Sometimes in halls and large rooms plants of great size are placed in vases on a pedestal in such positions, this Fern forms a striking object. *Alsophila australis* and *Cyathea dealbata* are capital for placing in the centre of groups, or for standing singly in good positions. *Lomaria gibba*, *Nephrodium molle*, *Nephrolepis davallioides*, and *N. tuberosa* are also very effective and last well. The last named I have a great fancy for, for filling vases or growing in baskets, and should be grown in large quantities, as it is both novel and striking in appearance. *Platycerium alcorni* is a useful Fern to use occasionally, on account of the remarkably curious structure of its fronds. Curiosities of this description usually attract a good deal of attention, and are therefore worth using for the sake of giving variety, and interesting many who would scarcely notice more common types of far greater beauty.

The Pterises are extremely serviceable to decorators. A few plants of the different varieties arranged amongst other plants give quite a distinct feature. To be seen to the best advantage they should be used sparingly as dot plants, so as to show distinctly the glowing outline of the individual plants and fronds. *P. argyrea*, the beautiful silvery markings shown on the arched fronds of this variety give it a character quite uncommon among Ferns, and it also has the advantage of being very attractive as well as uncommon. *P. cretica* and *P. cretica albo-lineata* are fairly effective and last well, but the real gems of the family, which should be grown in large quantities, are *P. serrulata*, *P. serrulata cristata*, and *P. tremula*. These last well in dwelling rooms, even when placed in comparatively dark corners, and when properly arranged in mixed groups aid materially in producing that glowing undulating surface which is rightly considered the correct method of artistic plant-grouping. Small plants of these varieties are also much sought after for filling receptacles for dinner table decorations, or various bronze and china figures, which have a small interstice for holding Ferns, and are generally placed in prominent positions within the drawing room or boudoir. Among hardy Ferns the following are worth growing in pots for decorative purposes:—*Adiantum Capillus-Veneris*, *Polystichum proliferum angulare*, *Scolopendrium crispum*, and *Woodwardia angustifolia*.—H. DUNKIN.

BRAMBLES.

CAN any of your readers give me any information as to the universal success of such varieties as Kittatinny, Lawton, Mammoth, Philadelphia, Snyder, Wilson junior, or any of the others of that tribe? I would gladly go by a slow train that stops at every station from Land's End to John o'Groat's to inspect them.—SOUTH WALES.

I CANNOT allow the remarks of "South Wales," on page 527, to pass unnoticed. He says, "I cannot congratulate 'De Nova' on the information he has tendered as to the great success of the American Blackberries." What does he mean? I have read his note on page 487, and the conclusion I arrived at was that "South Wales" had never either seen or heard of a good crop, and if any of your numerous readers knew of one, he would be pleased to hear of it, and as I visited Darlington in October and saw a splendid crop of the fruit in question, I informed him, "through the medium of the Journal," of the fact. I venture to think my note on page 509 does not deal with Blackberries in general as to whether they are a success or otherwise, it only deals with one particular crop that came under my notice. I, like your correspondent, have ceased to regard one swallow as making a summer; I have also ceased to regard one failure as final.—DE NOVA.

WHEN foreman at Tulliechewan Castle, Dumbartonshire, I remember the proprietor wishing to try some Brambles in the kitchen garden in order to increase their size, and the young men were sent to lift them from a bank of gravel. They were planted in an open position, staked as Raspberries, and the long rods tied from one stake to the other. They were about two years coming into a fruiting condition. After leaving I made a call now and again on Mr. Smith, the head gardener, and in walking round with him I noticed the Brambles were nearly all dead, and was told it was the severe weather in March that killed them. They had made stems 12 or 14 feet long. No doubt the strong growth was too soft, as those outside were safe enough. Perhaps this may interest "De Nova" and "South Wales." I never saw an American Blackberry in Scotland worth looking at, no need for tasting.—W. E., *Rutherglen*.

I PLANTED three plants of *Rubus laciniatus*, 16 feet apart, in January, 1883, against a south wall. In 1887 we gathered twenty-one quarts of fruit, in 1888 twenty-seven quarts, in 1889 thirty-eight quarts; on August 17th last we gathered the first quart, the last on October 20th. The longest growth made this year was 30 feet. When there is not enough new growth to take the old place, we prune the old close in, and leave what is required to cover the wall. The fruit and foliage have been admired by many. The fruit is fine and very useful.—WILLIAM KIPPS, *Walton Lea*.

I WAS always under the impression that the Parsley-leaved Bramble was an American. This I have been very successful with. Some of the branches have produced from sixty to one hundred ripe fruits, and some very fine. I have been trying different kinds for this last six or seven years, and have filled up the places of some with good English ones I have found in the hedgerows. Some of these have borne heavy crops. The Parsley-leaved Bramble seeds freely, and plants can also be raised from eyes the same as Vines, but when once established the best and easiest way of propagation is to bend the points an inch or two into the ground; they will soon strike root, and can then be planted where they are to stand for a year or two. If planted in favourable situations, strong shoots from 10 to 20 feet long will be produced during the season, and if well ripened will produce an abundance of fruit the following year. I suspect that some persons who complain about them have not planted them in situations at all to their liking. If they were to pay

attention to the surroundings of an extra fine specimen in the hedgerow, and try and imitate the conditions, we should hear of more heavy crops and fewer failures than at present. I believe the best way to grow them for profit is to throw up a mound similar to an earthed-up row of Celery, plant from 10 feet to 20 feet apart, and train the long growths similar to espalier fruit trees to keep them of the ground, and the fruit clean and handy to pick when ripe. I am sure when the culture is better understood they will become as popular in the garden as Currants and Gooseberries. The large black fruit is useful in many ways, as for wine, jelly, and jam, also for mixing with Apples for tarts or puddings. The wine is highly recommended for sore throat.—G. C., Warwick.



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY.

(Continued from page 560.)

Général Jacqueminot (Rousselet, 1853).—Good, but rather slender growth and foliage; liable to mildew, but not much injured by rain; very free flowering, and a good autumnal, but decidedly thin; must be grown very strong and cut very young to be fit for show, but is exhibited fairly sometimes, and indeed has once taken the silver medal at the metropolitan N.R.S. Show as the best H.P. As bright as Duke of Edinburgh when grown to perfection, but not lasting or large; still this good old Rose knows its weakness, "pulls itself together" in hot weather, and tightens its point as hard as it can. Is the great grandfather of almost all our red H.P.'s, and is still, I believe, grown very largely for market and florists' purposes, "Generals" being almost as well and affectionately known in the trade as "Niels."

Gloire de Margottin (Margottin, 1887) is a new Rose, on whose manners and customs it is as yet too early to dogmatise, and I only mention it because it seems as likely as any to supersede "The General" last mentioned. I do not know its parentage, but in general outward appearance it is very much like *Gloire de Rosomenes* (Vibert; the date appears to be lost in the mists of antiquity), which is, I believe, the progenitor of *Général Jacqueminot*, and of most of our red H.P.'s. *Gloire de Margottin* is, however, though still thin, very much fuller, and seems at present to "take the cake" as the brightest of all known red Roses. A long grower and free bloomer. If it will force well and hold its colour it seems likely to run "The Général" hard.

Other "Glories."—De Bourg la Reine, very bright; De Ducher, rather rough; De Vitry did badly with me. Of Waltham and of Cheshunt, pillar Roses, do not seem to call for special mention. *Gloire Lyonnaise* (1884) was said to be a yellow H.P., but I could not make it anything but white, and small but pretty as a bud.

Grand Mogul (W. Paul, 1887), though a new Rose, has been fairly tried by me, and I consider it to be identical with *Jean Soupert*, but, as compared with all other Roses, to have quite distinct manners and customs. The foliage is fair, and the growth good but peculiar. One or two shoots run away considerably above the others, and give promise of good blooms, and when the bud forms at last it is of very good typical shape, and seldom comes cracked or divided; but now, when you expect the plant to put all the strength into the bud, it does not seem to do so; the stem thickens considerably at the base, and tempting plump wood buds for budding form all up the stem, but the flower buds swell very little, although it opens slowly. The bloom is much smaller and weaker than one would expect from the size of the shoot, though sometimes of fair average size, and the shape is undeniably good; a round smooth button in the centre, the other perfectly imbricated, and the outline regular. The bloom is not very lasting, the colour rather dull, and it cannot be called a free bloomer, or be reckoned among the best autumnals. Decidedly liable to mildew, which sometimes affects the petals, but not much injured by rain. A seedling from A. K. Williams, and it is strange that in all characteristics it should be so very similar to *Jean Soupert*, a Rose older than its parent; but perhaps if we knew something more of the actual pedigree of our principal Roses for two or three generations some of these likenesses might be cleared up.

Harrison Weir (Turner, 1879).—A weak grower, suitable only for show purposes. Only one stem should be allowed to a plant, and if grown in this fashion good growth and foliage may be obtained the first year after budding. Not very liable to mildew, or to be spoilt by rain. A grand bloom, coming pretty true, stout in petal, globular in shape, a trifle weak in centre, but of beautiful velvety colour and fragrant scent. Of full size when grown strong, and good lasting qualities; but a Rose of weak constitution, of no use as a free bloomer or autumnal.

Heinrich Schultheis (Bennett, 1882) was a most useful introduction. Capital strong growth, with fine foliage, an early and free bloomer and good autumnal. Not very liable to mildew or to be injured by rain. The flower has large handsome petals, and is generally of a good shape when young, but soon falls abroad. An excellent hardy showy Rose of beautiful fresh colour and quite a large size.

Her Majesty (Bennett, 1886).—A well named Rose. We all know

the fable of the lioness, the queen of beasts, who, on being taunted with having only one young one at a birth (which is not true, by-the-by), said it was so, but that one was a lion. We acknowledge the imperial claims of Her Majesty, and that when a bloom does come it is often a queen; but will she not graciously concede that an average of only one bloom to four plants (which is what I had this year) is being a little too sparing of her favours? Manners and customs are notoriously strict and exacting in royal circles, and in this remarkable Rose we certainly have some striking peculiarities. Growth long, strong, and robust if well fed, but neither free nor (with me) rapid; makes extraordinary growth under favourable conditions, but a poor show if not treated regally and favoured with queen's weather. Prune high or low you will not get more than one or two shoots to a plant, and if the single growth of a maiden shoot be stopped, instead of breaking in several places like the vulgar herd, Her Majesty slowly shoots again from the top bud left, and continues one stem upwards as before. We may place the plants very close together, for the stems of each are few in number, and upright and stiff. Fine foliage and very large stems, terribly subject to mildew. A large proportion of the blooms come good, and are not much susceptible to damage by rain. They have grand stout petals, and are wonderfully full in the centre, so much so that the Rose has quite two shapes, and the best one was not known for the first year or two; for it has in the first stage a grand globular form, and when expanded and overblown it is yet so perfectly full, even when as flat as a pancake, as to show no eye, and be still presentable and wonderful though not so beautiful as a Rose. The colour is best and purest in the first of these stages; in the second it is something like that of a gigantic *Marie Cointet*. In size and lasting qualities it is quite at the top of the tree; as a free bloomer and autumnal absolutely at the bottom. I have not had the good fortune to see a single secondary or true autumnal bloom yet; but it does bloom as a maiden though not for certain, otherwise its title to the term Perpetual might well be yet in abeyance. Not the least remarkable point about this Rose is its parentage. It is said to be a seedling from the old Tea Canary, a yellow flimsy thing according to modern notions, and Mabel Morrison, a white sport from *Baronne de Rothschild*, particularly open and deficient in the centre. One would think that Mr. Bennett, on beholding the illustrious progeny of this apparently ill assorted pair, would be inclined to consider chance still as likely to be successful as the careful choosing of seed-parents; but he has, no doubt, his ideas and plans upon the subject, and fresh novelties in store, I hope, for expectant rosarians.

Henri Ledechaux (Ledechaux, 1868) and *Hippolyte Jamain* (Lacharme, 1874) are both members of the Comtesse d'Oxford, or rather Victor Verdier family, all of which have the same general manners and customs, which it will not be necessary to repeat again. Fairly good growth, with smooth characteristic wood, the first shoots losing their foliage early; objecting strongly to light soil or the Manetti stock; free producers in summer and autumn of blooms of good globular pointed shapes, but not very lasting. Of the two here mentioned the former is very thin and not suitable for exhibition, but has a charming bright bud for buttonholes; and the other is early, large, and a capital autumnal, but requires a rich soil.

Horace Vernet (Guillot, 1866).—A typical show Rose; grand in the exhibition box, few surpassing it; but to be sedulously avoided by those who grow Roses for ordinary garden purposes. The plant is of a thoroughly weak constitution, and cannot be kept in health and strength beyond a year or two. Indeed it is almost useless as a cut-back; no other Rose is more worthy of the annual system of culture—budding afresh on strong stocks every year, and doing away with the old plants—and for none is it more necessary. When thus treated the growth and foliage are good enough, one would think, to keep the stock roots in health; but the plant is sure to dwindle, if preserved. Not very liable to mildew or much injured by rain. The blooms generally come good, and good they are, with noble stout petals, well filled centre, perfect shape (pointed, passing to imbricated), good dark colour, and lasting qualities of the first order. Not a free bloomer nor a good autumnal; these are 'lions' to be made much of, and we must not expect many of them. Cut away the plant, as soon as it has bloomed, with a ruthless hand, to get the biggest and best buds for propagating. Waste none on weak stocks, and bud a good many, not delayed too long, for some may fail and require rebudding; and, whether you keep the old plants or not, you will not cut from them so long as you have young plants to go to. Hundreds of gardeners and rosarians, who would otherwise never have heard of the great French artist, have had his name "familiar in their mouths as household words," by the help of this noble Rose his namesake.

Jean Liabaud (Liabaud, 1875).—Fair growth and foliage, not very liable to mildew or to be much injured by rain. Not a very free bloomer, a poor autumnal, and a Rose of shocking manners. Occasionally one gets a lovely bloom, of open imbricated shape, not strong in the centre, very dark and shaded in the most beautiful way with brighter tints. But if you get one such in the course of a year from a dozen plants, you will be pretty lucky. An amateur, with not much room to spare, will probably soon have had enough of this Rose.

Jean Soupert (Lacharme, 1875).—See *Grand Mogul*.

John Hopper (Ward, 1862).—A very popular and well-known English Rose, raised in the eastern counties. Very hardy, with strong growth and good foliage, liable to mildew, but not much injured by rain. The blooms come early and of fairly regular form, but the shape is open, and not of the first class. The colour is beautifully fresh at first, but this is

even more fleeting than the shape. Not of the largest size, but a free bloomer and a good autumnal. This is everybody's Rose, of strong constitution, doing well as a cutting, or on poorish soil.

John Stuart Mill (Turner, 1874?).—Of strong, long, growth and good foliage, not very liable to mildew or to be injured by rain. The National Rose Society's catalogue describes this as "a good reliable flower;" but it is not so with me. It is true, more or less, of a great many Roses that they come well in some seasons but not in others. The one under notice has been very uncertain with me generally, but came exceptionally well and good last year. A capital imbricated red Rose, of average size and good lasting qualities, but only fair in freedom of bloom or as an autumnal.

Jules Margottin (Margottin, 1853).—Of strong hardy growth and good foliage, not liable to mildew or to be injured by rain. A very free bloomer and good autumnal, but a poorly shaped rough bloom from a florist's point of view. Early, sweet-scented, and not particular as to soil or treatment. A useful old-fashioned garden Rose, of strong constitution, and suitable for cottage gardens or odd corners. The seed parent of Edward Morren.—W. R. RAILLEM.

(To be continued.)

TEA ROSES IN A COOL CONSERVATORY AT CHRISTMAS.

TEA Roses are welcome blooms at all times, but at none other more so than Christmastide, when the demand for cut flowers generally quite keeps pace with the supply. At that season their chaste beauty is a pleasing relief after the Chrysanthemums, and always finds ready appreciation. In those establishments where houses are specially used for forcing flowers it is no very difficult task to have them in quantities at that time, but in gardens of more limited extent with scanty appliances this is not such an easy matter. Any method that will assist the supply is readily turned to account for that purpose in the latter places. For several years past we have been able to cut good quantities of blooms about Christmas from a plant which covers a portion of the roof of a cool conservatory without subjecting it to any special treatment, which might prove injurious to the other plants. In fact the management which it appears to like has been more beneficial than otherwise to them, although they are of the ordinary character for such a structure.

The plant itself is worked on the Briar stock, which I have always found the most satisfactory for Tea Roses, and planted in a narrow border on the shady side of the house. The compost in which it is planted is a sandy loam well incorporated with brickbats and a scattering of crushed bones, placed over a thick layer of rubble for drainage. But I may here mention that in my opinion a wonderful mixture of ingredients, which some consider indispensable, is less necessary than a simple compound which will remain sweet and porous for a long period. When planted in a compost of this description the necessary food for its continued prosperity can be readily supplied when necessary. In our case all that is given in that way is an occasional watering with liquid manure when the family are away, and a sprinkling of artificial manure when the former cannot be applied, but not oftener than twice in the course of a year.

It has been said that the abuse of the waterpot has killed thousands of plants, and if this be so it may be added that the wrong use of ventilators is accountable for the death of tens of thousands. At all stages careful ventilation is of the utmost importance for the welfare of Roses, direct currents of air on the tender growths being most disastrous in the results. Even if the thermometer registers 10° or 12° more than the orthodox number when an easterly wind is blowing the occupants of the house will show that they have had quite enough of it through the laps of the glass, without letting it into them full face, at least we have found it to be so, and if the Journal has been read aright this is no solitary experience. Another matter which we have attended to is keeping the growths well thinned, cutting weakly shoots clear away, encouraging only the strongest, and those well apart, more flowers and better being got from this treatment than when they are allowed to grow into a thicket. By following this course of management an almost continuous supply of blooms can be had from one plant, but if a quantity is required at any special time an extra thinning ought to be done about three months beforehand. Such a pruning was given to the plant in question at the latter end of September, and now for several weeks we have been able to cut fair quantities from it, a good average sample of which is forwarded for the Editor's inspection, besides an occasional bloom ever since.—M. D.

[The blooms received were of great excellence, and accompanied with large, deep green, glossy leaves. The variety was Adam.]

ROSA LAXA.

GARDENING papers are recommending, on the authority of Otto Froebel, Zurich, *Rosa laxa* for standard Roses. Is *Rosa laxa* to be found in English woods or hedges? I should like to get some, and seed to sow for Briar seedlings.—ROSA (MONO-MANIACA).

THE TREE TOMATO.

AT a recent meeting of the Royal Horticultural Society's Fruit Committee the Rev. W. Wilks, Shirley, sent fruits of the "Tree Tomato" *Cyphomandra betacea*. They were acutely egg-shaped, 3 inches long and 1½ inch in diameter in the widest part, dark

salmon in colour, firm, sprightly and agreeable, and possessing a brisk Tomato flavour. A cultural commendation was unanimously awarded, accompanied with a request that plants be grown at Chiswick. Mr. Wilks sent the following description of the plant with his exhibit:—The "tree" on which the fruits shown have been grown is about 9 feet high, with a spreading much-branched head. The leaves when young are of a violet purple colour, changing with growth into a deep green. They are very large when fully developed. The blossom is precisely like a *Solanum*, being, in fact, to an ordinary observer identical with that of the plant commonly known as "Black" or "Woody Nightshade." It is an abundant bearer, the fruit ripening late in November and throughout December and January. The fruit when raw has a much firmer flesh than a Tomato, and is slightly more acid, but when cooked it is almost indistinguishable from the ordinary Tomato. The plant has been grown throughout in a cool orchard house, from which only frost is excluded.

Cyphomandra betacea is a member of the *Solanum* family, and in

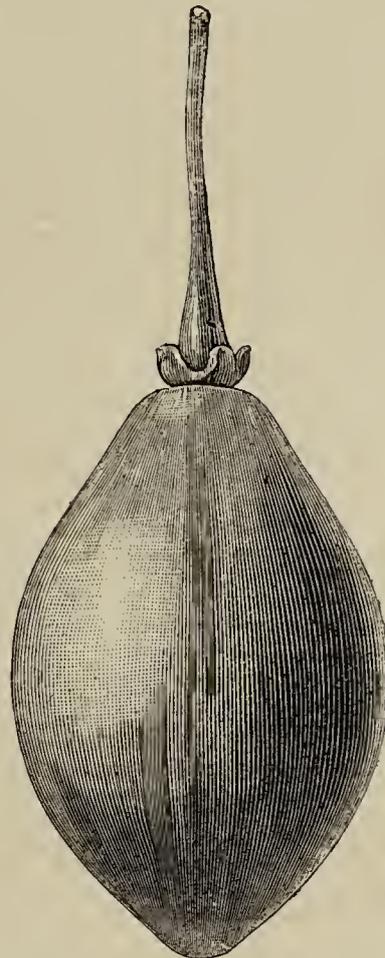


FIG. 3.—THE TREE TOMATO, *CYPHOMANDRA BETACEA*.

Decandolle's "Prodromus" about thirty species were described, chiefly from South America. The Tree Tomato has been known to botanists for many years, and has been cultivated in botanic gardens for a considerable time, but it is rarely seen in private gardens. As it succeeds in a cool house and is easily grown it is worth a trial as a fruit-yielding plant, and is very ornamental when its bright red fruits are ripe.

EUCCHARIS GRANDIFLORA.

I HAVE read with interest from time to time the articles on the above plant; and now send you a few notes as to the system adopted here. In the middle of a house which is devoted to Palms, Ferns, &c., there is a small rockery, which was at one time planted with Ferns. Finding the latter did not thrive well, being so far from the glass (about 10 feet), I thought I would try a few *Eucharises* in it. The bulbs were placed between the stones, the only soil used being refuse from the potting bench. They have now been planted ten years, and with the exception of the top soil being scraped off in the spring and a top-dressing of loam and manure and a little liquid at flowering time they have had nothing else. Along the top of the rockery is a shelf filled with Palms, and nearer the roof two more shelves with smaller plants. The *Eucharises* get the drip from these, so that the drying-off process is not rigidly followed here. We nearly always have some flowers, but regularly three times every year. They flowered last September, and they are now in full flower again. I enclose a spike and a leaf, asking your opinion as to whether it shows any signs of "mite." Some of my

friends would be disposed to think there is.—JNO. SHORT, *Hummers-knott, Darlington.*

[The plants appear to be in most vigorous health, and we can certainly see no sign of the mite. The largest leaf blade is 18 inches long by 7½ inches broad, the leafstalk 13 inches long. The strongest flower scape is 30 inches long, bearing five flowers. All the leaves are of great substance and a fine deep green colour. Flowers of "a cross between *Mastersi* and *candida*" were sent, but they were too withered to determine their characters; the corona seemed to be much reduced.]

THE BLACK MAZZARD CHERRY TREE.

THE Wild English Cherry tree is a frequent object in the landscapes of the older settled portions of the Middle Atlantic States, and, especially when in bloom, it presents a most dignified and attractive appearance. We know a tree about 50 feet in height, and of massive form. In bloom it is literally a sheet of white. Botanists call this species of Cherry *Cerasus Avium*, or, following Linnæus, *Prunus Avium*; horticulturally it is known as the Mazzard. There are two varieties of it, bearing respectively black and dark red fruit; the black variety is the one most disseminated. The fruit, which is bitter before maturity, retains but little of this taste when ripe, but becomes sweet and pleasant, and is eaten greedily by the birds. It has been extensively used in making bounce, or Cherry brandy, and the seeds are planted by nurserymen, as the young trees are the favourite stocks on which to bud and graft the choice cultivated varieties of Cherries. This species of Cherries and its varieties are called *Merisier* by the French. Loudon, in his "Encyclopedia of Gardening," says: "The *Merisiers* are like the wild Cherries of the woods. The fruit is small, with little flesh, which contains, even in its fullest maturity, enough of bitterness to justify the name of *Merise*; formed, as it is said to be, from the words *amre* and *cerise*. From this appellation has probably arisen that of *Merries*, which is given to wild Cherries in many parts of England." The word *mazzard* has undoubtedly the same origin. "Were Cherry trees scarce, and with much difficulty propagated," remarks Hanbury, "every man, though possessed of a single one only, would look upon it as a treasure. For besides the charming appearance these trees have, when besnowed, as it were, all over with bloom in the spring, can any tree in the vegetable tribe be conceived more beautiful, striking, and grand than a well grown and healthy Cherry tree, at that period when the fruit is ripe?" Alfred Smee, the author of "My Garden," says, in that work, in mentioning fruit trees that are used as forest trees in England:—"The Wild Cherry tree is extremely beautiful when covered with its white flowers, and in autumn its scarlet leaves render it again very attractive." The last named characteristic is also noticed by French writers, who put it forward as one of the attractions of the tree. Our own writers have not so particularly recognised this feature, though no doubt deserving, as our more highly coloured Maples, and Liquidambers, and other trees are still brighter in their autumn tints.

Wilson, in his "Rural Cyclopædia," says the fruit of this Cherry is "at present one of the most popular in the London market." It used to be sent to market from this region, but for the last twenty years but little has been seen of it. The author last named says that three sub-varieties of the species are cultivated in certain counties of England, under the names of the Bud, the Small Black, and the Honey; and the fruit of the last of these is "very small, pale red, and remarkably sweet, and is largely used for making Cherry wine." The black variety has always been the popular one in this country.—(*Vick's Magazine.*)

SALVIA SPLENDENS.

THIS, among the family of the Sages, is well worthy of the title of splendid. Rivals in the same family group it may have in summer and autumn, but in the earlier winter months it is unmatched. Contrasted at this season even with the loveliest and the gayest of other flowers, it constitutes one of the most dazzling ornaments of the greenhouse or conservatory. Even where there is nothing else very striking beside it, its own elegant foliage sets off to advantage its rich racemes of scarlet flowers. This interest is prolonged from the calyx being of the same colour as the corolla, as it is first expanded, and remains for some time after the corolla has dropped.

Salvia splendens, as well as most of our greenhouse and bedding-out species, is a native of Mexico. The term *Salvia* is derived from *salvus* (safe), in allusion to the beneficial character of many of the species in a medicinal and culinary point of view. Even now, many who are not yet decided epicures may be looking forward to the festive period, and thinking of partaking along with friends of those good things in the preparation of which even the common Sage is brought into abundant requisition. At the present time the plants, if safely lodged in the greenhouse and conservatory, should not be exposed to keen draughts of air if it is wished to preserve the bloom as long as possible. In watering, let the liquid be a little warmer than the air of the house, and if coloured with guano, superphosphate of lime, &c., they will like it all the better. If it is not convenient to have manure water, much the same object will be gained by top-dressing with old dried cow or sheep dung. Watering over it will enrich the compost, and, acting also as a mulching, less watering will be necessary, which is something, as if the pots are crammed with roots, and the weather should be fine, they will drink like any toppers. They will bloom well either in small or

large pots, though for striking effect large plants in large pots are the most desirable. "All very well!" say some dozen friends of ours at once, "I should like to have half a dozen of these fine large plants in my greenhouse now, they would look so well among *Chrysanthemums* and opening *Camellias*, &c.; and I should like a few small plants to enliven my window, but then I have always been deterred from growing them from the great space they would occupy when they have flowered, or before they had commenced to bloom, and then numbers of clever people have dunned into my ears to beware of them as I would shun the plague, as a few plants would soon fill a whole house with red spiders, and then farewell to all my other favourites, so far as their healthy looks are concerned." Now, even in these days of cheap glass we are well aware that from various causes the husbanding of space under glass is as much demanded as ever. But, even in this respect, our friends the *Salvias* are wonderfully accommodating. They are but little subject to the spider when sturdily, not daintily, reared. In any circumstances they are less troubled with it now than during the dog days. A slight syringe over the leaves when in bloom—and in cold weather, when a little heat is necessary, the brushing over the pipes or flue, when not very hot, with flowers of sulphur and water—will be next to effectual in keeping the intruder away. So much for present management.

Now, as to preparing for another year. As soon as the plants have done flowering, give away, or transfer them all save one to the rubbish heap; place the one saved in any out-of-the-way corner where a stray ray of light may reach it, and where frost cannot visit it—under the stage will answer well enough. There the leaves will soon drop, but never mind, though, if a few small ones remained on the points of the shoots, just to keep the sap in motion, it would be as well; yet, if you manage to keep the stems alive it is a matter of no great consequence, as from them plenty of young shoots will break in March or April, and if there are few or no leaves on them during the remainder of the winter you will not be troubled with nightmare about the red spider, as the stems will be too tough food for them. In the end of March, or the beginning of April, take off rather more short stubby shoots than you will want for plants, as some may fail; cut them across below a joint, insert them in cutting pots half filled with drainage, the other half with light sandy soil, with the exception of half an inch at the top, which is to consist of sand alone. If you have nothing but a greenhouse, the cuttings should be placed under a bellglass, or if inserted in a small pot, and that again placed at the bottom of a larger one and a square of glass placed over its mouth, it will answer admirably. This is to prevent the juices of the cutting being evaporated, and, farther to effect this, shading must be resorted to in bright weather. The number and size of the leaves to be retained must depend upon the means you possess of preventing the transpiration of the juices of the cuttings. They may thus be struck in a window or greenhouse, but a Cucumber box is the very place for them, and if there you can give them a shady warm corner, and the bellglass, or the square of glass in addition, you will be surprised to find how soon your cuttings will be changed into rooted plants.

If you have nothing but the greenhouse and a cold pit, shift the plants first into 3-inch pots, and then successively into 6 and 12-inch pots, setting them as soon as possible in the pit, as there you may keep them close for a time to encourage rooting after each shifting. But if you can command a little bottom heat, such as the side of a Cucumber box, shift at once into 6-inch pots, and then again into 12's. In either case set them out of doors by the middle or end of June, either upon coal ashes or plunging the pot in a border with a tile at the bottom of the pots to prevent worms entering, and to prevent the roots going out, shade in sunshine when first turned out, stop every shoot to make the plants stubby and bushy until the middle of July, water with weak liquid manure and clear water alternately; frequently after a rainy day syringe the whole of the foliage well with a weak, clear solution of soot and water; provide them with a temporary shelter by means of mats or waterproofed calico by the middle of September to guard against heavy rains, storms, and frosts, and set them in the house by the end of October, or rather, if convenient, by the middle of the month, and the blaze of scarlet in November will well repay all your efforts. Many with a keen relish for floral loveliness cannot afford to get costly plants, and this is just one of the things for them, as the cost will almost entirely consist in their time and labour. For getting fine little plants for the window, it will be time enough to strike the cuttings in June. Three things in growing these must be attended to. Syringe the plants frequently, water liberally, and prevent frost ever affecting the foliage. Equal portions of loam and peat will suit them well; a little dung added to the last shifting will be advantageous.—R.

THE ADVANTAGES OF FIRM SOIL.

THE advantage of firm soil is not sufficiently recognised, but it is one of the greatest aids to successful culture with which I am acquainted. The benefits are confined to no class of plants, but apply to kitchen garden crops, plants in pots, Vine and fruit tree borders of every description. Many, however, do not try to make the soil firm. In potting it is not always pushed or rammed down firm. It is generally shaken about the roots and pressed with the fingers and thumbs, but this is not always sufficient. Indeed, I have known some in potting to leave the soil loose that the "roots might penetrate it freely," and they might do so by rambling through it and becoming long and fibreless, but it is close matted fibry roots that are the most satisfactory, and

these are only produced in firm soil. The leading roots have to fight their way through a firm soil, and this causes them to throw out innumerable fibres which are the life of the plant.

Loosely potted plants are constantly requiring water, as that which is given passes through quickly, and if the drainage becomes at all clogged the whole soil is soon a miniature bog, and failure immediately follows; but this never occurs with firmly potted plants. The more difficult the plant is to grow the firmer the soil should be made, and many understand this, as we all know how very firm good cultivators of Heath, Azaleas, and some other hardwooded plants pot their specimens. The result of potting a Heath loosely can be readily imagined, and the disastrous consequences are to be found in other plants as well, only perhaps they do not show it so soon or so conspicuously.

It would be impossible to calculate the number of plants annually killed or kept in permanent bad health by loose potting, and the remedy is in the hands of all. Give Vines a loose border, and they will produce long jointed wood, flabby leaves, and straggling bunches, but in a firm border all these are reversed, and the firmness of the border is shown in the sturdy development. Many who try to improve their straggling Vines by adding rich top-dressings would accomplish the work much sooner and better if they simply trod the surface down a hundred times. I know Peach and other wall trees that are sometimes disturbed by moles hurrying amongst the roots and loosening the soil, and these are never in such good health or so fruitful as others that have the soil firmly pressed about the roots. In fact, fruit trees show the disadvantage of having to exist in a loose soil as much as a plant in a 6-inch pot, and it is impossible to make fruit borders too firm.

Cucumbers and Tomatoes may be grown capitally in a hat box full of soil if it is firm, but in a loose heap they only produce soft unfruitful wood, and always seem to be hanging between life and death. It is a difficult matter to prevent Pine Apple plants assuming a yellow hue when they are potted without the soil being rammed, and firmly potted plants of all descriptions bear much more cold and damp in winter than those in loose soil. It is a grave mistake to allow the ground to remain loose that the water may pass through and away from it freely, because it does not do so, but retains the moisture far more than the firm soil.

Vegetable crops are greatly influenced by firm soil. In the case of Onions, Turnips, and Beetroot the loose soil will cause them to grow deformed, forked, and small, but firm soil induces them to "bulb" early of splendid form and a great size. Carrots and Parsnips, too, show the difference, as forked roots are the rule in loose soil, whereas in firm material they are straight, clean, and perfect. During the last ten years I can safely say we have not lost a score of Celery plants through "bolting," and I attribute their immunity from this common complaint to the thorough treading the soil receives round the plants. Extremes of drought and wet do not affect vegetation half so much in a firm soil as in a loose one, and in short wherever the production of high class crops is desired firm soil should be provided.—J. MUIR, *Margam Park, South Wales.*

THE CAGED BULLFINCH.

If the good qualities of the bullfinch were generally known it would be more frequently sought as a domestic pet. For at least twenty-five years I have never been without one, and I can testify they are amusing and affectionate birds. Of course, the song of our English bullfinch is not to be compared with that of some other finches; it consists but of few notes, yet it has an agreeable wildness about it, and as the bullfinch is somewhat imitative it often picks up and mingles with its natural song fragments of vocal or instrumental music it may have heard. When young it may be got to learn any tune that is assiduously whistled to it daily, and it is stated that the bullfinch can be taught to utter short words, but I have never had proof of this. Towards those who feed it, and others it frequently sees, this bird soon shows affection, jealousy also of notice given to other birds, or even to children. It has a terror of cats which is almost ludicrous, but, on the other hand, it shows little alarm of some things which much startle canaries, such as an unusual head dress, or any peculiar noise. Bechstein states that the bullfinch seldom lives long in confinement—from six to eight years, frequently less. I have had them live ten, and I believe mismanagement or neglect is the cause by some persons soon lose bullfinches. Should they be fed with seeds, not paste, they require hemp mixed with canary, but the hemp should be crushed. I do not think rape is good for them, for they seem to be benefited by a little maw or poppy seed occasionally. Green food is very important, to be varied according to the season; they are fond of Plantain, Groundsel, Shepherd's Purse, and Watercress. As their feet are apt to be clogged these must be looked after, and now and then washed.—NATURALIST.

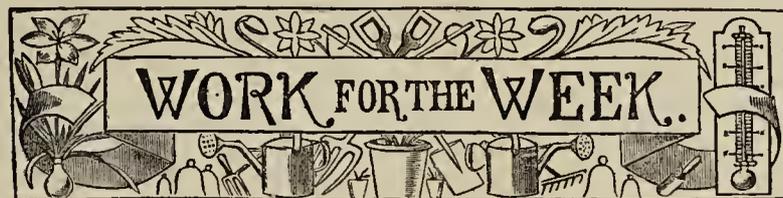
BOTANY IN AMERICA.

THE great botanical establishment which the people of New York are still talking about vaguely is to be realised in St. Louis. It is provided for under the will of Mr. Henry Shaw, who died during the past summer, having for many years devoted his leisure and a considerable part of his income to the establishment and care of a public garden in his adopted city. The whole of his estate, with the exception of a few small legacies, is now left to a board of trustees for the benefit of this garden. It has been appraised at nearly 3,000,000 dollars, and produces a net income of about 50,000 dollars; but as a large part

of Mr. Shaw's property is invested in unimproved real estate within the city limits of St. Louis, the income of his estate may be expected to increase enormously with the growth of that city; and Professor William Trelease, the newly appointed director, will, in all probability, soon find himself at the head of a better endowed establishment than any other of its kind which has ever existed. There is no botanical garden in the world, with the exception of that at Kew, where the annual expenditures are not far from 100,000 dollars, which enjoys an income of anything like 50,000 dollars, and a vast amount of good and useful work can be accomplished every year with that sum of money. Professor Trelease, with the income now at his command or which will be available for his purpose in a short time, will be able to lay the foundation of an establishment of such scope that it will soon make St. Louis the botanical centre of the New World and draw to it students from every quarter of the globe. His early efforts, very properly, will be devoted to elucidating the botany of North America; and he is fortunate in possessing as a nucleus of the St. Louis herbarium the collections of Engelmann, which, in certain groups of plants, are so inestimable value.

Of special interest to young men who desire to become gardeners is the plan, not yet entirely matured, of offering, in connection with the Shaw Garden, six scholarships for garden pupils, for the benefit of young men between fourteen and twenty years of age, who are to be taken for six years, and who will be expected to work in the different departments of the garden, receiving, besides, theoretical instruction in botany, horticulture, economic entomology, and as much land surveying and book-keeping as is necessary for a gardener having the charge of a large estate. It is proposed by means of these scholarships to make gardeners, and not botanists, and a taste for the manual work of the garden will be insisted on in the young men who hold them. They will receive pay for their work, and be given, free of cost, plain and comfortable lodgings near the garden, as well as free tuition in the School of Botany of Washington University, and such other instruction as may be necessary. Never before has such a chance been offered in this country to young men desiring to become thoroughly educated and trained gardeners, and the influence which Mr. Shaw's munificent bequest will exert through these scholarships upon horticulture in the United States can hardly fail to be great and lasting.

The trustees of the Shaw Garden have it in their power to build up a great and useful institution of science and learning. Their opportunity is magnificent, and their responsibility is correspondingly great.—(*American Garden.*)



FRUIT FORCING.

VINES.—*Earliest Forced.*—Great care is required at this time to avoid chills, such as those resulting from cold currents of air and drenching the borders with cold water. Now the foliage is increasing root action will be excited, and should be encouraged by supplying tepid water at a temperature not exceeding 90°, not allowing the fermenting materials to decline in heat at this critical stage. It is a good plan to keep a heap of leaves and stable manure in reserve, from which the supply may be drawn as required. Disbud and tie the shoots down before they touch the glass, not being in too great a hurry in stopping nor restricting to a certain number of joints beyond the bunch, yet there ought to be two, and better three or four; but extend the growth so as to insure plenty of well-developed foliage, yet avoid overcrowding. Remove superfluous bunches as soon as choice can be made of the best, avoiding overcropping. Keep the house at 70° to 75° by artificial means as the flowers open, and maintain a rather drier condition of the atmosphere. As soon as the fruit is set Vines in pots may be copiously supplied with liquid manure, maintaining a moist atmosphere. Damp the paths two or three times a day, and occasionally with liquid manure, keeping the evaporation troughs charged with the same.

Houses to Afford Ripe Grapes in June.—The Vines that are to supply these should be started at once, abundance of fermenting materials being placed on the outside border; or if it be already protected with a good thickness of dry fern or litter fermenting materials may be dispensed with, and if wooden shutters or glazed lights are at command for throwing off the rain it will be an advantage. Supply the inside border thoroughly with water at a temperature of 90°, and economise fuel by the free use of fermenting materials inside the house. Damp the house and Vines two or three times a day when the weather is bright, but in dull weather once or at most twice a day will be ample. The temperature should be 50° to 55° by artificial means, and 65° from sun heat.

Houses in which the Grapes have been Cut.—Prune the Vines with as little delay as possible. This will cause the spurs in course of time to become long; and so they do by any mode, but it is easy to train up young canes for their displacement. Strip off all loose bark, no attempt at scraping being made, and wash the Vines with soft soap and water. Avoid pigments, which leave a deposit on the Vines. Remove the surface soil or mulching down to the roots, and supply fresh material. Keep the house cool, but if utilised for plants the temperature arti-

ficially must not exceed 45°; indeed, plants that require safety from frost only should be placed in vineries when the Vines are at rest.

Late Houses.—Maintain a mean temperature of 45° with a dry atmosphere in houses in which Grapes are hanging. Examine every bunch frequently, and remove all decayed berries. Ventilate the house on fine dry mornings, and keep it closed when the weather is damp. Where late Grapes were ripened comparatively early, and it is desired to start the Vines soon after the middle of February, the Grapes may be cut, the ends of the stems being inserted in bottles of rain water secured in an inclined position, so as to admit of the fruit hanging clear of the bottles. Any dry room will be a suitable place where an equable temperature of 40° to 45° is maintained. This will admit of the Vines being pruned and the house cleaned.

KITCHEN GARDEN.

DIGGING.—Now that we have passed what is commonly termed the “turn of the year” work in the kitchen garden will increase weekly; it is therefore necessary that all who wish to have early crops and quick profitable returns must be prepared to plant and sow when opportunity offers. This can rarely be done to advantage when the ground has to be dug at the time of putting in the crops, but when manured and prepared before cropping is easy and expeditious work. Vacant quarters are now more general than they were a month or two ago, and all intended for early crops should be prepared at once.

PEAS AND BROAD BEANS.—Those sown some weeks ago are now through the soil. Sift some coal ashes very fine, and put a line of them along each side of the plants; this will prevent snails destroying the young plants. If in a windy or exposed position a mound of earth about 6 inches high can be drawn up outside the ashes, which will leave the plants in a sheltered furrow, and prove more beneficial than twigs or stakes, which are apt to “draw” them too much up. January sown Peas and Broad Beans are always good crops with us, and more of the early varieties should be sown on the first favourable opportunity. In a rich well-drained soil there is no danger of failure.

EARLY CARROTS.—For some years we made up a hotbed early in January, placed a frame or frames on the top of it, filled them partially with soil, and sowed the early Carrots, but we found the exposed manure acted like a sponge, absorbed the wet, and soon cooled to such an extent that it was no stimulant to the Carrots. We now use a frame 4 to 5 feet high at the back, and about 3 feet in front. The manure is packed firmly inside, and the soil is placed on this; the whole is protected, and the soil retains the heat double the length of time of the other way, and it is less littery. Only the Horn varieties should be forced, and 10 inches of soil is sufficient for them. This should be rather light and sandy, and contain a good sprinkling of soot. The manure must be trodden firmly down first, and the soil equally so on the top. If only 4 inches or 5 inches from the lights when finished that will be sufficient, as by the time the tops have gained size the manure will have subsided a little. The seed should not be covered more than a quarter of an inch, and if watered immediately after sowing no more will be required till the plants are visible. Protect from frost, and admit a little air on fine days.

EARLY RADISHES.—These are easily produced from now onwards. They do not require the same substantial or lasting bed as the Carrots, and a slight hotbed with a frame on the top is sufficient. If grown for private use a one-light bed sown every ten days will yield a constant supply of roots. They are very tender and crisp when raised in frames early in the season, and never fail to please as salad.

PARSNIPS.—Before the winter is over the bulk of these decay very much at the crown, and sometimes it is difficult to preserve them. We have lifted and stored them in sand or ashes and kept them dry in a dark shed, and we are of opinion that they are as well left in the soil as treated in any of these ways. The crowns may become black and pulpy, but the greater length of the root will remain sound, and the flavour is far better preserved in the ground than by any storing process.

EARLY SEED POTATOES.—Unless with very special facilities we do not recommend Potato forcing to be commenced until February. Those planted in frames or pots at this time make very long stems, but the tubers do not grow equally rapid, and January planted Potatoes are never very productive. The seed tubers intended for planting in February should now, however, be taken in hand. Place strong healthy tubers in one layer as close as they will stand to each other growing end upwards in a shallow box, shake a little leaf soil or sand over them. Place them in a house or pit where the temperature is about 60°, and in the full light. This will induce them to produce strong shoots, which will be a great gain at planting time.

CELERY.—The frost and wet have caused much of this to become soft in the upper part of the stems, and some may be afraid of losing it, but that earthed up and under soil is less easily injured, and is rarely spoiled. We have tried lifting it and storing under cover, but if anything it kept worse in this way than in the ground. When the weather is dry clear all the protecting litter away from it to admit air, do not replace it unless frost prevail, also remove the decayed ends from the stems. If finely sifted ashes or sand is put round the collar of each plant and pressed firmly down it will arrest decay much more than loose materials. Celery that is soft and all spongy to the root does not keep so well as the heads that are solid throughout, and whether Celery keeps well or not depends a good deal on this point.

EARLY BRUSSELS SPROUTS.—Some growers like to see their Sprouts

button about midsummer, and they rear them under glass to have them early, but by midwinter these are not half so useful as the late ones that only begin to sprout in September. A few rows of the former with us cannot be sent to the kitchen now, but the latter are medium in size, exceedingly firm, and quite fresh.



NOTES ON BEES.

CONDITION OF HIVES.

EVERYWHERE hives seem to be in excellent condition, and are a marked contrast to what they were in the autumn of 1888. The only drawback, as I stated some time since, is that many hives which were at the Heather have virgin queens; that would have been avoided had the bee-keepers depended only on their nuclei for next year's stocks.

With the absence of such extremely cold weather next spring as we had in that of 1888, and fine weather in July and August, there is a good prospect of having an abundant harvest of honey in 1890, which with strong hives and but two weeks' fine weather in either month will be certain.

It is worth repeating—Do not delay getting everything likely to be required ready for next summer, particularly for the Heather harvest. Lay the plans beforehand, and when the time comes put them into execution.

Every succeeding year there seem to be many recruits taking advantage of the Heather, and as many of the sites occupied by the bees are far from dwellings, there ought to be nothing to seek for; supers, packing cases, and all necessary tools for removing supers should be at hand. Nothing clears the supers of bees so rapidly and effectually as the carbolicised papers, first used by me and announced in this Journal, but subsequently claimed by many who were but novices in bee-keeping. I do not wish to encourage a superfluous number of appliances, as they are sometimes expensive, and not unfrequently of little use; but there is one which I would not be without, and I am careful to have my appliances serve more than one purpose.

A TRIPOD.

In conjunction with a Westing's patent chain pulley and a steelyard this weighs hives, supers, &c., with little trouble, and costs (complete) about 20s. or thereabouts. It also forms a manipulating tent, but of course requires a calico cover, costing about 7s. when finished. In addition to the uses mentioned it serves well for camping out either by night or by day. A spirit or mineral oil lamp does all that is necessary for heating or cooking. A packing box serves as table, bench, or seat. I do not know anything more useful where workmen are to take shelter from showers. Gardeners, for example, may have certain work to perform during an inclement time of showery weather. Basket making or other needful work could be carried on in one of these during the time the showers last, and then being kept dry the men are more comfortable and more work is performed than if they had to stand out the gales. The tripod is light and easily carried about from place to place, and is useful for transplanting trees and shrubs. One is easily made. A card, chain, or hoop of the proper dimensions are all that is necessary to hold the legs together. My own is made with a circular crossed piece of wood for the top with a bolt hook for suspension in the centre, the legs 2 by 1½ inch rounded on the top to form a hinge or knuckle; a piece of wire passes through the centre of the arc into kneed pieces of iron held firm by screws, as is also the pivot. It measures only 8 feet high, but when expanded has ample room for six or eight men to take shelter in, or for half that number to work.

It is actually folly to take bees to the Heather and leave them to chance, as many do, until the end of the season, unless when

they have been deprived of everything, and sent to the Heather to fill up from the foundation. This system gives new combs and honey of superior quality, but not so handy nor so saleable as when in supers. The best plan to accomplish that is to send the hives to the moors, with plenty of bees in large hives, in which the honey in the body boxes has been kept secure, but from which all supers wholly or partly filled have been removed, and bees numerous enough to take possession of them again. If any of them have a paucity of brood in the body of the hive, remove the empty combs and fill with those having plenty, and let this be done three or four weeks before the Heather may be expected to be in bloom. The older bees are, if not worn out, the better they work, but they are more vicious; bees under three weeks old do not attack people readily, and it may be safely said that bees three or four months old are better fitted to gather surplus honey than those at six weeks old. It is a common saying amongst bee-keepers that the vicious bees are always the best honey collectors. This is because of their age, and not of the variety, as old bee-keepers supposed when only one kind of bee was in the country.

Bees when at the Heather, except in specially fine weather, are apt to leave their supers and store the honey in the body of the hive. To prevent this overhaul the hive (I speak of the Stewarton or Lanarkshire hive), and if the brood frames can be got into two boxes do so, removing the under one for a time until the bees have taken to the supers, then at the earliest opportunity return the under box and combs, and then you will see them work in earnest.—A LANARKSHIRE BEE-KEEPER.

YOUNG BEES IN DECEMBER.

THANKING you for the answer inserted in the Journal respecting bees fanning, I am again taking the liberty of putting some other questions concerning bees. On December 19th I found a young bee dead on the landing board. The bee was of white colour, and on December 21st I found another dead, which appeared to be a few days older. I enclose the two, and perhaps you could then tell me whether there is any sign of foul brood, or if these have been chilled in the frost. Is it right for the bees to be breeding now? There is no smell from the hive, and since you answered my letter I have covered them well. I also enclose an old bee, and ask you whether it is an English black bee, or is it crossed with foreign blood? As the bees weighed 40 lbs. when brought to their new home, would they on account of young require feeding now or in February, or not at all? Is it mineral tar or gas tar you advise using for the hives, and should turpentine be mixed with it to dry it, and should the inside of a bar-frame hive be so dressed as well as the outside? I brought the bees to their new home the last week in October.—A YOUNG BEGINNER.

[The two immature bees are simply chilled, and there is no foul brood. When a hive is affected with foul brood the bees do not draw them from the cells, nor can they do so very well, because of the gluey and adhesive nature of the dead larvæ, not the pupa. There is a disease that the pupæ are attacked by and which the bees could remove; but from what I have seen the bees do not draw them from the cell when dead as they do when the young are chilled or deformed, the latter arising commonly from retarded development through cold.

It is difficult, nay impossible, to tell the cross of any variety of bee from a single specimen, and very difficult to know accurately in many cases what they are from a whole swarm. The one sent is not a native black bee, nor is it a pure one of any breed. I should think it is half Carniolian, crossed with a black. The rudimentary yellow stripe, so prominent in the black bee, is almost absent in this one; then the thorax is quite black. This peculiarity in crosses is somewhat singular, appearing frequently in the first cross of the lightest-coloured varieties, and darker than any known breed. This dark colour on the thorax appears to be greatest change when crossing has been effected. The young bees in your hive seem to have been the cause of so much fanning of late, and with so mild a season as the present one has been there is nothing extraordinary in the case, as many bees commence breeding immediately after the shortest day. Carniolians seem less inclined to breed early than the yellow and Punic races do. I have a letter from a bee-keeper in the West Highlands who has an extensive apiary. He says, "I have to-day (December 16th) taken a quiet peep into one of my Carniolian hives, and find there are both eggs and larvæ in it, and this too when the thermometer stood at 20° Fahr." You, along with the rest of us, no doubt will have observed "A Hallamshire Bee-keeper's" opinion on bees hibernating. I am inclined to think he will be in a difficult position to explain how bees hibernate when they have been known to breed throughout the whole winter, and when the mercury was down at zero. The apparently dormant state bees show more or less throughout the whole year will require another name than hibernating. I suppose 40 lbs. is the gross weight of your hive. It will be well to feed as

early as the weather will permit in January, immediately after the bees have had an airing.

Gas tar is what I use for my hives, but it is the spirituous or thinner and finer sort, caught in the furthest removed interceptor from the retort; this dries quickly, and has a brilliant surface. I use it inside all my double-cased hives, but not inside the single-cased ones; but they would, I believe, be all the better for it. If common tar is used a little turpentine or naphtha is necessary to quicken the drying. Double-cased hives will be less useful in the future.—A LANARKSHIRE BEE-KEEPER.]

THE HALLAMSHIRE GLASS SECTIONS.

I SEE by the letter of "A Howdenshire Bee-keeper," page 564, that the editorial footnote to my article on page 519 is being interpreted in the way I thought it would be. I am asked, "Why I did not plainly tell of my intentions at first," meaning, I suppose, my intentions of taking out a patent on my invention. I think I shall best answer this question by explaining my motive and object in taking out a patent. Firstly, it was to secure the invention in such a manner that all bee-keepers could freely make and use it; secondly, to prevent others from making capital or getting credit for it; thirdly, to fix the date above question in view of any possible priority claim; and, fourthly, to have the power to take legal proceedings against anyone who tried to tamper with it. If I had not patented the invention, and had divulged the plan, there were plenty ready to take out patents for their own benefit; in fact the attempts to get the secret were many and curious.

When a man patents anything, the exact date, and, by implication, even the exact time also, is put down beyond question by anyone. The applicant states exactly in his own words and by means of his own drawings exactly what his own invention is. There is no restriction as to how many or how few words he may use or how many drawings he may send in, nor how intricate they may be. In my case I sent seventy-five illustrations on twenty-five foolscap sheets. These were the drawings alone. The Patent Office advertises all particulars in respect of it, and gives an abstract with a reduced copy of the drawings in the official weekly Journal, price 6d.; and they publish at a nominal price, and always keep in stock exact copies of the drawings with every word the patentee has had to say, for sale to anyone, and will send them post free to any part of the country for the amount of the postage extra. As a matter of fact and law a patent is the most public publication possible in this country, but how many know it?

When a man has his patent, it is a property for him to deal with just as he would with any other property; at least this was the law to the end of 1883. Now the law says he must grant licences to anyone to use his patent that likes; if terms cannot be agreed on between the patentee and user, the Courts have power to order a compulsory licence and to fix the terms, so that there is nothing to prevent a patentee granting free licences, or only charging a nominal price. I have said "a child can make my sections," but I have never said everyone would have a full legal right to make and use them; and if back numbers are referred to, it will be found that I have plainly hinted that I was going to take steps to prevent being deprived of the honour attaching to the invention.

The plain facts are these. I have a fairly large apiary of about thirty stocks, and some thirty extra empty hives of various patterns, which for years have been devoted to experimental purposes. I have never hesitated to put twenty stocks in experiment to try and solve any problem. Now to take upon myself the trouble and responsibility of protecting everyone who wants to use glass sections, to say nothing about the expense I have been at in my experiments solving the problem, is more than I feel justified in doing, but by making a small charge I hope to do all I want, so that the benefits will outweigh the annual charge. There is another matter I have under serious consideration—viz., I must either drop bees, or hire someone to help me to look after them, at least in the summer. This is what I want to do, then I can carry out very many experiments which is at present impossible. Hobbies are all right in their place, but when a man has to neglect other matters to ride his hobby, he must either curtail his riding or make it pay as part of his regular business.

I hope I have made the matter clear, and had hoped to see bee-keepers employing their spare moments making sections on their own hearths in winter instead of having to buy foreign ones. I shall keep the patent in force as long as possible, even if I do not get a shilling towards the £150 that will be required to do it.

Replying to "A Sussex Amateur" on page 541, I do not include him amongst those who have been trying to set up the priority claim; but as the sections have been illustrated, described, and discussed elsewhere, there is nothing really to discover even afresh.—A HALLAMSHIRE BEE-KEEPER.

[As we permit our correspondent to state where the drawings can be obtained in a complete form, there is not the least necessity for our publishing the right which he supplied to us, nor can we insert any more explanations regarding this matter.]

TRADE CATALOGUES RECEIVED.

Webbs', Wordsley, Stourbridge.—*Spring Catalogue, 1890, Illustrated with Coloured Plates.*

John Laing & Sons, Forest Hill, S.E.—*Catalogue of Seeds and Novelties and General Plants.*

- H. & F. Sharpe, Wisbech, Cambridgeshire.—*Wholesale Catalogue Garden and Agricultural Seeds, 1889-90.*
 Chr. Lorenz, Erfurt, Germany.—*Illustrated Catalogue for 1890.*
 Dickson & Robinson, 12, Old Millgate, Manchester.—*Seed Catalogue, 1890.*
 Dobbie & Co., Rothesay, Scotland.—*Catalogue and Competitors' Guide, 1890.*
 Stuart & Mein, Kelso, Scotland.—*Amateurs' Gardening Guide, 1890.*
 J. R. Pearson & Son, 2, Exchange Row, Nottingham.—*Spring Seed List of 1890.*
 J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex.—*Catalogue of Vegetable and Flower Seeds.*
 H. Cannell & Sons, Swanley, Kent.—*Complete Catalogue of Perfect Seeds.*
 C. Sahut, Montpellier.—*List of Fruit Trees and Shrubs.*
 Charles Sharpe & Co., Sleaford, Lincolnshire.—*Catalogue of Garden and Farm Seeds, 1890.*
 Brown & Wilson, 10, Market Place, Manchester.—*Illustrated Descriptive Seed List.*
 W. Paul & Son, Waltham Cross.—*Catalogue of Seeds and Garden Sundries.*
 J. C. Wheeler & Son, Gloucester.—*Select Seed List for 1890.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Rosa laxa (*R. D. and others*).—We are not able to say whether the stocks referred to are grown for sale or not. If they are, and it is desired to distribute them, they will perhaps be advertised.

Double-spathed Richardia (*M. C., Brighton*).—The specimen you send is not novel to us. We have seen many similar, but do not remember a better example. These double-spathed specimens indicate that the plants are strong and have been well cultivated.

Vine Wood (*J. G.*).—The wood is not so well ripened as it should be, nor the buds so round, bold, and firm as we like to see them, though we have seen less satisfactory wood produce fairly good Grapes. Efforts should be made to secure better ripened wood another year.

Show Gooseberries and Currants (*Reader*).—If you read the paragraph on page 548 again you will find the varieties named that were the most frequently exhibited, and that is one of the best tests of their suitability for the purpose in question. Lee's Prolific and Black Champion are two good Black Currants for your purpose; and the true Raby Castle, often sold as Victoria, a good red variety, but the Red Cherry has larger berries, but shorter bunches. Wilmot's Large White Currant is one of the largest, but the White Dutch well grown is good for exhibition.

Preparing Tobacco Paper (*F. S.*).—Provided you can make sure that the ordinary tobacco juice sold in jars is free from any deleterious substance, there is no objection to your soaking brown paper therewith, and, when dried sufficiently, employing it for fumigating purposes. It is much the safest plan before using the paper for general purposes to try it on a small scale on plants with foliage liable to be damaged by fumigation, and if found satisfactory it can be used extensively.

Peach Buds Falling (*Zoro*).—The cause of the buds falling, as indicated by the wood, is imperfect development of the organs of fructification. This arises mainly from a too free and extensive rooting area, the soil being too loose, and the roots consequently do not form fibres, the wood is not short-jointed or thoroughly solidified. We advise lifting the tree carefully a little in advance of the leaves falling, making the soil firmer, adding clay marl if procurable to the extent of a fourth finely divided, mixing it well with the soil, and if this cannot be effected add about a sixth of old mortar rubbish, firming the soil thoroughly under and over the roots. Judiciously practised lifting is a certain cure for ordinary Peach buds falling, but they may fall from defects of treatment, which we do not think have occurred in your case.

Tobacco-leaved Cherry (*C. R.*).—There is nothing for which this Cherry is remarkable, except its large leaves and high sounding name; however it came to be called "Four-to-the-Pound" would puzzle anyone to imagine, but such is the name by which it was at one time known, and under which it was found in all nurserymen's catalogues. It is a very old Cherry, and is evidently of English origin, being mentioned by Parkinson as early as 1629, under the modest designation of "Ounce Cherrie." He says, "The Ounce Cherrie hath the greatest and broadest leafe of any other Cherrie, but beareth the smallest store of Cherries everie yeare that any doth, and yett blossometh well; the fruit also is nothing answerable to the name, being not great, of a pale yellowish red, neere the colour of amber, and therefore some have called it the Amber Cherrie." There is no doubt it is this variety also which is described by Meager under the name of Ciliegeberrylin," which he says is "as big as an indifferent Apple." The Germans ascribe its introduction on the Continent to the Earl of Murray, who had a seat at Menin, in Flanders, whence it was taken into Germany by M. Seehach, colonel of an Austrian regiment of cavalry, and who received it from Lord Murray's gardener under the name of Quatre à la Livre. The leaves are a foot and sometimes 18 inches long."

Preserving the Colours of Leaves (*G. R.*).—The plan here described is recommended by a lady who has been successful in preserving autumn leaves:—As soon as possible after gathering them the leaves must be pressed. If they begin to wilt or shrivel before you are ready to press them, put them in water and keep them there until they revive. See that no soil, no foreign substance of any kind, is on either side, and then with a warm, not hot, flat iron press and iron each leaf on its upper surface till it is perfectly dry, spreading it for this purpose on several layers of paper, or on an ordinary ironing-board, just as if it were cotton cloth. This over, oil each leaf on the same side on which it was ironed with linseed, olive, or lard oil, using a small camel-hair brush or a bit of cotton batting tied to a stick, and then place them on dishes in the sunshine to dry. When dry reject all those that have a semi-transparent or oily appearance; to prevent this get the thickest leaves you can for your collection, and do not oil them too generously nor with a rough brush. It is a mistaken notion that autumn leaves need varnishing. Varnish makes them brittle and more liable to crack, while the excessive lustre that it imparts is unnatural. Oiling gives sufficient polish, deepens, clears, and preserves the colours, and keeps the tissues somewhat elastic. When the leaves get dusty wipe them with a damp cloth; if they curl damp them, and place the branch for a few hours between papers under a pile of heavy books.

Propagating Indiarubber Plants (*A. G.*).—The following methods, successfully practised by an old grower, will answer with you if carefully carried out:—The present time is suitable for propagating this plant, either by shoots taken off with a heel or by eyes. When it is propagated by eyes they should be taken with a leaf attached to each, and be placed in silver sand to keep them from bleeding. Insert them in small pots well drained, in a mixture of peat and cocoa-nut fibre, and plunge in a strong bottom heat of 90°, with a little sand under each cutting. If they are not placed in a strong bottom heat the eyes will not break. When the eyes have rooted and commenced growing they should be repotted into 48-sized pots, in equal parts of turfy loam and peat, with sufficient sand to keep the soil open. The plants should be placed in a temperature of about 70°, and be syringed frequently; occasionally sponging the foliage is also highly beneficial. The plants should never be allowed to become potbound until they have grown to the allotted size, when they will be greatly benefited by liberal supplies of liquid manure. During their growing season they should never be allowed to become dry at the roots, as dryness causes the leaves to turn yellow and spoils the beauty of the plants. Shoots taken off with a heel will make plants much quicker than raising them from eyes; and it is the safest plan, for if strong bottom heat is not afforded, the eyes, as before mentioned, will not break into growth. When only a few plants of rapid growth are required we advise that they be raised from cuttings, but when a great number of small plants are required, which is not unfrequently the case now Indiarubber Plants are fashionable, the mode of raising them from eyes must be resorted to. Plants are now in great demand, and are being rapidly increased by the above modes in most nurseries, and they have a large sale in Covent Garden Market.

Culture of the Cranberry (*W. W.*).—This agreeable fruit may be easily cultivated. It grows naturally in low boggy places, or on wet moors amongst the bog moss. This moss, rising gradually up above the level of the water, forms, as the lower parts decay, a bed in which the Cranberry flourishes and bears fruit abundantly. To cultivate it near home we must imitate the situation in which it grows wild. To accomplish this fix upon a situation near to a supply of water, then dig out the common soil 4 inches, and fill up the place with bog earth; raise up this peat 6 inches above the level; then form a trench round the bed a foot or 16 inches wide, puddling it at the side next the common soil and at the bottom with clay. Keep this trench full of water. Plant the Cranberry plants in the raised bed a foot apart every way; they will soon run over the whole surface and bear plenty of fruit. The water should be frequently changed or it will become foul. Should there be a small lake, or even a large one, near at hand, an excellent Cranberry bed might be made near to the side. All that would be required would be to form a low flat island with a peat earth surface, the Cranberry plant put in it at the proper distance, and kept clear from weeds. This might be named with propriety, "The Cranberry Island." A small extent would produce a large supply of fruit. If

the island was 8 yards long and 4 wide it would be quite large enough to supply a moderate family. Lastly, this fruit may be grown in a bed of peat 1 foot deep, sunk an inch or two below the general surface, and during dry weather be flooded with water occasionally. In this bed they will fruit to a middling extent. This last method is, however, not nearly so good as either of the former; it should only be adopted where the situation will not admit of either of the other being practised. The American Cranberry, on account of its size, is the best to be cultivated.

COVENT GARDEN MARKET.—JANUARY 1ST.

OUR Market has been well supplied with all classes of goods for Christmas; Grapes especially were good and reasonable, Pears alone being short and high priced. Business generally has not been up to the average.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, 1/2 sieve	2	0 to 6	Oranges, per 100	4	0 to 9
" Nova Scotia and	12	0	Peaches, dozen	0	0
" Canada, per barrel ..	12	0	Plums, 1/2-sieve	0	0
Cherries, 1/2 sieve	0	0	Red Currants, per 1/2-sieve	0	0
Grapes, per lb.	1	0	Black	0	0
Lemons, case	10	0	St. Michael Pinee, each	2	0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	4	0 to 5	Leeks, bunch	0	2 to 0
Asparagus, bundle	0	0	Lettuce, dozen	0	9
Beans, Kidney, per lb. ..	0	6	Mushrooms, punnet ..	1	6
Beet, Red, dozen	1	0	Mustard & Cress, punnet	0	2
Broccoli, bundle	0	0	Onions, bushel	3	0
Brussels Sprouts, 1/2 sieve	1	6	Parsley, dozen bunches	2	0
Cabbage, dozen	1	6	Parsnips, dozen	1	0
Capsicums, per 100	0	0	Potatoes, per cwt.	3	0
Carrots, bunch	0	4	Rhubarb, bundle	0	2
Canflowers, dozen	2	0	Salsify, bundle	1	0
Celery, bundle	1	0	Scorzonera, bundle	1	6
Coleworts, doz. bunches	2	0	Shallots, per lb.	0	3
Cucumbers, each	0	3	Spinach, bushel	1	0
Endive, dozen	1	0	Tomatoes, per lb.	0	6
Herbs, bunch	0	2	Turnips, bunch	0	4

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Aram Lilies, 12 blooms ..	4	0 to 9	Maidenhair Fern, doz.	4	0 to 9
Asters, per bunch, French	0	0	bunches	4	0 to 9
Azalea, dozen sprays	0	9	Mignonette, 12 bunches	2	0
Bouvardias, bunch	0	6	" Fr., large bunch	1	6
Camellias, dozen blooms	1	6	Narcissus (Paper-white),	1	0
Carnations, 12 blooms ..	1	0	dozen sprays	1	0
Christmas Roses, 12 blms.	1	0	" French, 12 bunches	4	0
Chrysanthemums, dozen	0	6	Pelargoniums, 12 trusses	1	0
blooms	0	6	" scarlet, 12 bunches	6	0
Chrysanthemums, dozen	6	0	Primula (double) 12 sprays	1	0
bunches	6	0	" (single) 12 sprays ..	0	9
Epiphyllum, doz. blooms	0	6	Roses (Indoor), dozen ..	1	6
Encharis, dozen	4	0	" Red	0	0
Gardenias, 12 blooms ..	4	0	" 12 blooms	1	6
Gladiolus (various) dozen	0	0	" Tea, white, dozen ..	1	0
sprays	0	0	" Yellow	2	0
Hyacinths (Roman) dozen	0	6	" French, per bunch ..	2	0
sprays	0	6	Spiraea, dozen bunches ..	9	0
Lapageria, 12 blooms ..	2	0	Stephanotis, doz. sprays	0	0
Lilium, various, 12 blms	2	0	Sweet Peas, doz. bunches	0	0
Lilium longiflorum, 12	9	0	Tuberose, 12 blooms ..	1	6
blooms	9	0	Violets, dozen bunches ..	1	0
Lily of the Valley, dozen	1	6	" French, per bunch ..	2	0
sprays	1	6	" Parme, per bunch ..	4	0
Marguerites, 12 bunches	2	0	White Lilac, Fr., per bunch	6	0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0 to 12	Ficus elastica, each ..	1	6 to 7
Arm Lilies, per dozen ..	12	0	Foliage plants, var., each	2	0
Arbor vitae (golden) dozen	6	0	Hyacinths, 12 pots ..	9	0
Azalea, various, pr doz.	30	0	" (Roman) 12 pots ..	9	0
Begonias, various, per doz	4	0	Lily of the Valley, 12 pots	24	0
Balsams, per dozen ..	0	0	Marguerite Daisy, dozen	6	0
Caladiums, per doz. ..	0	0	Mignonette, per dozen ..	0	0
Christmas Rose	0	0	Must, per dozen	0	0
Chrysanthemums, dozen	6	0	Myrtles, dozen	6	0
Dracena terminalis, doz.	24	0	Palms, in var., each ..	2	6
Dracena viridia, doz. ..	12	0	Primula (single) per doz.	4	0
Epiphyllum, per doz. ..	12	0	Rhodanthe, per dozen ..	0	0
Eriola, various, dozen ..	12	0	Saxifraga pyramidalis,	0	0
Enonymus, var., dozen	6	0	pr dozen	0	0
Evergreens, in var., dozen	6	0	Solanums, per dozen ..	6	0
Ferns, in variety, dozen	4	0	Tulips, 12 pots	8	0



A HAPPY NEW YEAR.

QUICKLY run the sands of time; another year ended, another year begun! How can we best turn to account the lessons of the past so as to insure a bright and prosperous future? For we are very sure that farmers and prosperity have not parted company for good and all. On the contrary, it is gradually coming back to us, and the more fully this is realised and the more clearly the manner

of its return is grasped by our readers the more able will they be to obtain their full share of it, and to enjoy the Happy New Year which we so cordially wish them.

No radical change is there in the agricultural situation, nor is there likely to be any such change brought about by State aid in the guise of protection. It is to themselves alone that farmers must now look for relief; nor is it difficult to see how they may do so. Rent has come down with the price of corn, and good sound land can be hired at "time's prices," which means really a fair and reasonable adjustment of rent to the present value of farm produce. Taken upon this sound basis land ought to answer under really good cultivation quite as well as it ever did; and it does. No doubt there is a serious curtailment of means among farmers generally; but this by no means points to unprofitable farming, but rather to small profits, which it is now our aim to realise as quickly as possible.

As mixed and modified husbandry takes the place of exclusive corn-growing prosperity returns, especially to those who are striving earnestly for improvement in every detail as well as the actual system of their practice. That faults abound in ordinary farm practice there can be no doubt. Ignorance, prejudice, carelessness all tend to cripple the farmer, and it is exceptional to meet with intelligent striving for improvement. Read, mark, learn, as well as practise, say we to every farmer, and do not let prejudice and custom stand in the way of improvement. Only an hour or two before sitting down to write this article we asked a Kent dairy farmer what place green Maize had among his crops, and were told that Maize would not answer in Kent. A little inquiry showed us that he was quite ignorant of the high value of this crop, as well as of the simple process involved in its cultivation. We ventured to say he was altogether mistaken, and gave him the necessary details with a hope that he might be induced to try this finest of all green forage crops for early autumn use.

Before all things a tenant farmer should resolve to turn every yard of land for which he pays rent to full account, and he should next set himself earnestly to see how he can best do this at a moderate expenditure. Good farming does not consist in the production of heavy crops and numerous fat stock at an outlay which absorbs all profits, but rather in a system of management which insures a certain profitable return upon outlay every year. In order to do this the outlay for labour must be confined within given limits, the crops must be well balanced, the live stock must be well bred, brought to early and profitable maturity, and not be kept simply for the manufacture of manure. Waste is a crying evil on many a farm, and we repeat that there is much waste in the formation of huge muck heaps, from the feeding of the cattle, the reckless use of hay, roots, and straw, onwards to the carting, turning, recarting, and final spreading of what is termed manure, but which too frequently is mere sodden humus.

Very much is done to enable farmers to avoid wasting money upon adulterated cattle food and manure by the Royal Agricultural Society of England and similar associations, yet for the majority of farmers the analyses published do no good. They are content to continue purchasing cake and manures about which they know nothing, simply because the cake has some nourishing properties, the manure some elements of fertility, without having regard to much worthless matter contained in both, upon which they are content to waste money. Repeatedly have we had evidence of this in Dr. Voelcker's reports, yet the sale of such rubbish continues, to the disgrace and loss of the easy going purchasers. Individual effort can do very little to grapple with this matter other than by a strict avoidance of dealers in such articles. But local Agricultural Chambers and Farmers' Clubs would be doing good to form companies whence farmers could obtain their supplies with a feeling of certainty that they are having pure genuine food and manures at the lowest market price. Failing such advantages, expenditure upon cake and manures may be avoided by using home-grown food and an extension of sheep folding, which, after all, is

the most economical and certain method of imparting fertility to the soil. That this would be done more generally we have no doubt if each farmer would keep well within the compass of his means and only hire as much land as he could afford to manage in the best possible manner.

WORK ON THE HOME FARM.

The last week or two have been very busy ones at the homestead, an extra supply of all kinds of our home farm produce having been required for Christmas festivities. Carc was taken to send an ample store of Oats, hay, and straw up to the Hall stables in good time for the extra horses, of which there are always several coming and going at this season of the year. Carriage horses are easy to calculate for in comparison to hunters, as they consume a given quantity of corn with very little variation; but for hunters there must be an unlimited supply, only taking care to have it slightly crushed before delivery to the stables. It should never be forgotten that much corn is wasted by being used uncrushed, as it is very liable to pass through the stomach of an aged or overworked horse without being digested. There is a decided preference for old winter Oats both in hunting and training stables, and the home farmer should make it part of his especial business to always have a full supply of this corn, well screened, and weighing at least 42 lbs. to the bushel. A few old Beans are also much liked.

Good meadow hay will always pass muster with stable managers, but individual fancies are wont to crop up for savoury Clover and Sainfoin hay, or sweet old Rye Grass hay. We have always found it good policy to make all reasonable concession to meet such fancies, as they are practically harmless, and the difference in value is immaterial. It is a good and economical plan to arrange to supply such stables regularly with chaffed forage, so that by mixing winter Oat straw chaff with that of hay and stover much saving of hay may be effected. Nothing but the best Wheat straw is considered suitable for light horses, but we continue to mix a large proportion of the best Barley straw with it, and when the threshing has been well done we have no complaints.

Perhaps really good butter is more highly appreciated at this season of the year than any other. Enough cows have calved recently to enable us to reserve cream from their milk for the daily churnings for the table butter pats, and so avoid all risk of the unpleasant flavour which is apt to be found when cream from stale cows is used. The most scrupulous care is taken with cowhouses, yards, and food now, so as to avoid all risk of imparting any taint to the milk. There is also a sink in the milking shed with water laid on, a hand bowl, soap, and a coarse roller towel to ensure clean hands for the milking.

REVIEW OF BOOK.

Farm Live Stock of Great Britain. By ROBERT WALLACE, F.L.S., F.R.S.E., &c. Second edition. Edinburgh: Oliver & Boyd, Tweedale Court. London: Simpkin, Marshall, & Co. 1889.

NOT an easy matter is it to find a niche in agricultural literature for any new departure, however novel may be its features, but in "Farm Live Stock" Professor Wallace has certainly done so. Very modestly does he tell how he has striven to render his work of especial value as a text-book for students of agriculture, and of interest to the general reader. He has done much more than this, for a careful perusal of the work has brought conviction that it may be taken as a guide and counsellor by farmers generally. Take, for example, the "General Management" of pigs. Here we have the form of the sow, the time and full particulars of breeding, and are told how a sow may be induced "to have five litters in two years by beginning to feed the young on milk at two or three weeks old," which goes to show that early maturity in breeding as well as in fattening is possible under good management. Under such treatment a sow is ready for breeding at the age of six months. The first litter is put at the reasonable number of six or eight pigs, and subsequent litters at ten or twelve.

"Pigs," we are told, "are the most economical meat producers on the farm. They consume more food per 100 lbs. live weight than either sheep or oxen, and have much greater capacity for assimilation in the intestines, though their stomachs are small. They consequently require concentrated or digestible food." Much other useful information is given, and amongst it we may call particular attention to a table setting forth the cost of producing a stone (14 lbs.) of pork, which shows that a net profit of 1s. per stone may be had in addition to the manure. This calculation is based upon the assumption that pig meal costs, inclusive of grinding and carriage, £5 7s. 10d. per ton, but reference to the lowest quotations shows that it can be had for considerably less than this.

Equally forcible and useful examples might be quoted of cattle, sheep, and horses, but we give preference to pigs, because we cannot too frequently impress upon farmers the fact of upwards of eleven million pounds (£11,000,000) being paid annually to foreign producers for the pork, lard, bacon, and hams imported into this country, all which could so clearly be produced by British farmers profitably. Assuredly we have no just right to clamour to the State for protection, or help of any sort, when we will not help ourselves.

Among other special features of this useful work are its photographic illustrations of typical animals of the various breeds, with historical sketches, based upon the standard works of Youatt, Coleman,

Low, Shields, Pringle, Wrightson, and Sheldon. This novel method of illustration is commendable as conveying a good general idea of the characteristics of each breed, but as yet it fails to emphasise prominent individual features as the pencil of an artist would do. The principles of breeding are clearly set forth, and are of much value, as also are the points of breeds and cross-breeds, and the author's estimate of their comparative value for the production of milk and beef.

We entirely agree with Professor Wallace upon the evils of the rough-and-ready treatment of foot-rot by driving an entire flock periodically through a trough containing a certain specific. The plan it elf is a bid for carelessness. Foot-rot is contagious, and the only safe method of treatment is to take each case, and treat it strictly according to its special requirements. The author's advice about other diseases of farm animals is equally sensible, and his description of the symptoms of different ailments may be taken as a guide which will not mislead. Of swine fever we are told the symptoms are "costiveness in the first and diarrhoea in the second stages, with dullness, shivering, great thirst, and listlessness; the skin covered with red and black patches." Surely nothing can be more graphic or pointed, for we have every prominent symptom before us at a glance.

In the last chapter we have examples of stocking farms in the southern and midland counties in full detail, the difference in the requirements of light and heavy lands being shown, and a balance sheet is appended showing an amount of profit which farmers generally would be glad to realise in these hard times. Without dwelling upon the calculations given to show how such profit is realised, we may usefully commend them and the teaching of the entire book as eminently calculated to promote that which the author has evidently at heart—i.e., the prosperity of British agriculture.

OUR LETTER BOX.

Egg-bound Hen (*Jas. Helsby*).—There are various causes, amongst others overfeeding, a soft-shelled or very large egg blocking the egg passage, &c. Oil the passage with a feather, or inject into it some sweet oil. Hold the affected part over a pailful of boiling water, which will greatly assist the expulsion of the egg. Handle the bird very gently, as rough usage is apt to break the egg inside of the bird, which generally proves fatal.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 8' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	1889. December.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
Sunday	15	30.432	53.9	38.8	N.	47.9	45.7	33.5	47.1	28.4	0.015
Monday	16	30.445	45.3	41.8	W.	38.7	50.9	33.4	53.6	29.9	0.032
Tuesday	17	30.474	50.4	50.1	S.W.	40.9	53.2	45.2	54.9	43.9	—
Wednesday	18	30.294	51.6	49.5	S.W.	42.9	50.1	48.1	53.6	46.9	0.042
Thursday	19	30.360	35.8	35.8	N.	43.0	45.6	34.4	50.7	27.3	—
Friday	20	29.726	45.3	43.8	S.	41.9	44.1	35.7	49.3	32.1	0.050
Saturday	21	29.811	40.2	38.4	S.W.	40.8	52.2	34.6	56.8	24.0	0.295
		30.220	43.1	42.3		40.9	49.3	37.3	52.3	33.8	0.434

REMARKS.

- 15th.—Fine early; dull damp day, with drizzle at mid day.
 - 16th.—Damp early, fair morning, drizzle in afternoon and evening; very mild.
 - 17th.—Mild and dull.
 - 18th.—Cloudy and mild morning; drizzle in afternoon and evening; clear night.
 - 19th.—Dense fog till 10 A.M. when gradually clearing and bright sunshine from noon.
 - 20th.—Fine early, drizzly morning, squalls of rain and wind from noon to 1 P.M.; fair afternoon; clear night.
 - 21st.—Fine early; dull and damp from 10 A.M.; showers in the evening.
- A mild, damp and showery week; temperature 4° above the average.—G. J. SYMONS

DATE.	9 A.M.					IN THE DAY.				Rain.	
	1889. December.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
Sunday	22	29.569	52.2	51.0	S.W.	41.9	52.9	41.8	58.1	38.0	0.152
Monday	23	30.001	41.9	41.4	N.W.	42.9	50.4	41.2	59.2	35.6	0.070
Tuesday	24	29.724	50.2	49.6	S.	42.9	52.8	41.6	58.2	37.7	0.058
Wednesday	25	30.487	35.6	35.0	W.	42.1	44.9	32.8	53.8	27.0	—
Thursday	26	30.583	34.2	34.2	S.	39.9	42.3	31.4	44.2	16.9	—
Friday	27	30.534	33.9	37.3	N.E.	39.9	40.1	33.9	41.8	28.3	—
Saturday	28	30.289	31.2	30.6	E.	38.9	39.9	30.9	34.2	30.9	—
		30.170	40.6	39.9		41.2	45.2	36.2	49.2	32.1	0.279

REMARKS.

- 22nd.—Wet till 7 A.M.; fine morning, with some sun; wet afternoon and evening.
 - 23rd.—Sunshine all the morning, dull afternoon and evening.
 - 24th.—Showery morning; fair afternoon with some sunshine; clear night.
 - 25th.—Fine and bright throughout.
 - 26th.—Fine, but without sunshine.
 - 27th.—Cloudy throughout.
 - 28th.—Cloudy and cold.
- Considerable variation of temperature, but the mean very near the average.—G. J. SYMONS.



COMMENTS ON FRUIT
CULTURE.

"*D. DEAL*," in his comprehensive and genial New Year's greeting refers to the progress that has been made in flower, vegetable, and fruit culture during the past year. In respect to the latter he says, "A great movement has taken place, and, as is usual with us, we have been rather inclined to ride the hobby to death. While there is no doubt much to be done by the better cultivation of better sorts, as has been well shown in the Fruiterers' Company's prize essay on fruit growing, yet that fruit is ever in this country to take the place of any of our other products or drive the foreigner out of our markets is a wild chimera." Those sentences are worthy of repetition and brief comment.

In preparing the essay referred to I endeavoured to avoid indulgence in the extravagant utterances that have been far too common and certainly misleading in newspapers and magazines on the subject of fruit. Such statements as of £6,000,000 to £8,000,000 being expended on fruits that "might be grown at home" have been so often repeated as to have sunk deep into the public mind as the truth. They are not true. The value of the importations of Currants, Raisins, Oranges, Lemons, Bananas, and various other tropical fruits are included in the importations, and in fact form the chief bulk of them, and only a visionary would suggest that the supply of them necessary for meeting the consumption in this country can be grown here; and I am in entire accord with "*D. Deal*," that the idea of driving the foreigner out of our markets as a producer of fruit is a "wild chimera." I go further, and say if such a thing should by any possibility happen it would be a misfortune to us as a community. Instead of abusing the "foreigner" for sending us such good, full, and generally cheap supplies of fruit of the nature indicated we should thank him for his enterprise, and if home growers of hardy fruit have failed to produce more, and of the first marketable quality, whose fault is it? Not the "foreigner's" surely. No, the fault is at home, and the most hopeful sign of the times is that it is at last admitted—hence the "great movement" referred to, and which will as surely result in more and better fruit being grown in this country as the sun will rise to-morrow.

The fact that millions of bushels of Apples are brought from over the sea, and sold in our markets yearly, demonstrates the inadequacy of our home supplies, but not in bulk so much as in appearance. I am not quite sure the expression of my belief now to be recorded will not expose me to an avalanche of hostile criticism. That must be risked. My belief is that, weight for weight, the practically worthless and unsaleable home-grown Apples in good Apple years exceed the importations of handsome-looking well sorted fruits that come from distant shores, and are sold in shops nearly all over the kingdom. I am convinced from not very limited observation that such is the fact, and I am equally convinced it ought not to be, and will not be in a few years' time. If owners of exhausted orchards in different parts of the country are content to rely on their produce so much the worse for them, and so much the better for those more enlightened cultivators who are planting the best varieties in the best manner in the best soil at command, for the fruit from these trees, properly marketed, will sell at the least as well as any that can be brought from other lands, and probably better, for the best culinary Apples of Great Britain

possess a piquancy and briskness all their own that is bound to be preferred to the comparatively insipid and "flat" tasted imported samples. The millions of purchasers in cities do not know this, because they see so little home-grown fruits good enough in appearance to tempt them to buy and find it out. They buy that which looks the best when prices are reasonable, and when they are not they go without. The first essential of fruit for sale is good appearance, as represented by size, uniformity in sample, and colour—not necessarily redness but clearness, though the British matron undoubtedly likes a "bit o' colour." Yet well grown, firm, fleshy, juicy home-grown yellow Apples, free from specks and bruises, sell well at good prices to the grower when he has good crops to sell.

This brings to the front another point that cannot be overlooked by practical men, and it is this—no matter how good the varieties, how suitable the soil, how skilled the cultural attention, good crops of Apples cannot be relied on with anything like certainty every year. The most correct methods of pruning may be practised, the best of manures employed, insects may be subdued, and perhaps caterpillars conquered; but man with all his wisdom, though he may guide his trees into blossom and rejoice in their beauty, may be compelled to see it fall and leave little or no fruit behind. The organs of fructification may be imperfect, as was the case with so many last spring through the influence of the cold and wet preceding summer; bright sunny days and keen frosty nights may occur during blossoming time, or a week or ten days of rain. All these are natural incidents that have happened in the past too frequently, leaving the trees barren, and they will occur in the future. From these visitations alone many persons who are planting trees so hopefully, and counting on their yielding estimated amounts yearly, will sooner or later be greatly disappointed. There will be seasons in which they will have no fruit, just as during the past year thousands of trees in the best condition for bearing, and watched and cared for by the most expert cultivators, had not a fruit on them. That there are sanguine persons expecting more than they will realise from planting fruit trees is certain—some through the natural obstacles alluded to, others through errors in choice of varieties, and bad planting in unsuitable soil and unfavourable situations. Acres of trees have been "stuck in" during the last two years in a manner and in soil in which they cannot thrive and prove remunerative. In this respect the "hobby is being ridden to death." Sound information was never so much needed on the subject of fruit culture by so many persons as at the present time, and I cannot advise persons who have little or no experience to guide them, and little or no money to lose, to invest in one kind of fruit alone, such as Apples or Plums, as so many are disposed to do. They may find it weary waiting for the crops, and hard to live in the meantime, therefore I strongly urge the desirability of not overlooking what are known as small soft fruits for affording quick returns for immediate use and preserving. Any one kind of fruit—such as Apples, Plums, and Pears—is liable to fail; but I have never known a year when all fruits have failed, and the small are more certain in bearing than the larger kinds.

Another thing, and this brings me, perhaps, slightly in conflict with the dictum that "fruit will never in this country take the place of any of our other products." I think jam has taken the place of butter in the meal of many a hungry child. Thousands of such meals have from time to time been provided by the kindly disposed to children in Board schools in the poorer districts in London, and jam largely, palatably, and wholesomely, takes the place of grease in humble homes innumerable, and possibly in some that are not destitute of the comforts or even of the luxuries of life. But much jam is, comparatively speaking, horrid stuff, though more, I am glad to believe, is excellent. For pure, wholesome, first class jam, in which the fruit is not smashed to obscure its identity, we ought, with our facilities for its production, and the

cheapest sugar in the world, have the world for a market, and establish an export trade far greater in extent and far more valuable than the imports of raw hardy fruit into this country.

The Fruiterers' Company are endeavouring to afford guidance to those who need it on fruit culture. There can be no doubt of their earnestness and disinterestedness in the matter. It is not a company of wealth, but of influence, and the confidence it enjoys is apparent in the contributions towards raising a sum of £5000 for investment, the income therefrom to be devoted to the encouragement of the object in view. Large professional fruit farmers need no encouragement. They can look after themselves, and prizes of a few pounds would neither do them nor anyone else any good. With cottagers and small farmers it is different, and it is that great class—the least well-to-do of all workers on the land—who require such assistance as can be given for bettering their condition. In what way this can be best accomplished will no doubt be the subject of grave deliberation. On this subject the *Midland Counties Herald* makes a suggestion that is bound to have the consideration it merits. Our contemporary says:—"Let the Fruiterers' Company search out a few competent men and set them to teach our country folks how to cultivate fruit trees profitably by a series of lectures and practical illustrations of the art of pruning, which can rarely or never be acquired from books alone. They can commence operations on a small scale, and might start in one or two parishes in favoured districts during the winter months, and in the spring and summer following outdoor illustrations might be given of the various operations involved. Under no circumstances would such efforts made to instruct the people be quite without effect, and the chances are they would prove most beneficial."

There cannot be a doubt that practical teaching of the nature indicated, or lessons given in the garden, so to say, by persons who are competent to show by example how to plant and prune, and to explain the reasons of the different operations, would be the most effectual. The Fruiterers' Company can no doubt find the men if the means are forthcoming to do what is suggested. It is a question of means, and it is conceivable there are landowners sufficiently wealthy who would be glad to engage, through the Company, men who could give such lessons as would enable their tenants to grow much more and better fruit in the future than has been grown in the past for the benefit of their families and the inhabitants of the surrounding districts, while the value of the land would be enhanced. Also I know there are persons who have a few hundreds, and even a few thousands of pounds at command who are most desirous of investing in fruit culture, but entirely without experience, who would most decidedly find it to their advantage to engage a competent man at the outset who could advise on the suitability of the land inspected, its preparation for planting, the selection of varieties of fruit, and all other matters on which success depends. Fruit will be so plentiful in the course of a few years, when the seasons are favourable, that only those who have commenced its culture on a good foundation will realise with some approach to their expectations. There are plenty of teachers by the tongue and the pen who can neither plant nor prune, but they are not the men to inspire confidence as guides in the important work in question. Perhaps the time may come when the Fruiterers' Company will be in a position to recommend advisers who have proved their competency in fruit culture by long experience and successful work. These alone are to be relied on, and it is only those that a responsible body could afford to invest with authority to represent them.—J. WRIGHT.

PLANTS CERTIFICATED IN 1889.

THE commercial value of certificates awarded to new plants was illustrated in a legal action that attracted much attention during the past year, and it was also convincingly shown that those awards only carry special pecuniary value when the person to

whom they are adjudged possesses the entire stock of such a novelty. At the same time, any plant that has been certificated acquires a certain general importance that nurserymen are not slow to take advantage of by announcing the fact in their catalogues, even though they were not the recipients of the honour in question. Where a stock is in hand of the identical plant this course is perfectly justifiable, and is equally open to all. The special object of a certificate is to stamp an exhibit, whether plant, fruit, or vegetable, as meritorious, and distinct from others of its class. The benefit derived by the trade is incidental, but no doubt considerable. If the onerous duty of awarding certificates be performed justly and with the exercise of keen discrimination, the value of such awards to purchasers should, however, be much greater, and it speaks volumes for the honesty of British nurserymen that they voluntarily submit so many of their acquisitions to the critical examination of independent experts. It is sometimes urged as indicating certificates do not possess the value supposed, that many useful garden productions have found their way into general cultivation and favour without such recommendation. This is true, but the process of gaining popularity is a longer one, and possibly more expensive too. At any rate, this is being recognised by the majority of those concerned with the introduction or raising new plants, and the numbers submitted to the Floral Committee increase rather than diminish, as some have predicted.

Since 1859 the Floral Committee of the Royal Horticultural Society has performed invaluable service in according official recognition to deserving novelties, and a complete descriptive record of the plants exhibited and certificated during these thirty years would constitute a most important work of reference. For some years certificates in two grades, first and second class, were adopted, but as some dissatisfaction was expressed with this arrangement, and the second class certificates not only failed to possess any value, but even came to be considered a stamp of inferiority, they were discontinued. The awards were then restricted to first class only, with botanical certificates for plants possessing some interest structurally or otherwise, but not sufficiently attractive to rank as garden plants for decorative use. Last year a new system was inaugurated, which caused a little confusion at first, but ultimately was found to work well, and it will no doubt be continued. The "first class certificate" was continued for plants of special distinction and merit; and for those that still deserved notice, while not perhaps of such pronounced characters as the others, an "award of merit" was instituted, thus permitting the Committee to recognise many plants that would otherwise have been passed or placed on an equality with those of a superior character. It was also stated in the new rules that "in quite exceptional cases gold, silver, or bronze medals may be awarded for objects of extraordinary merit," but in the only case where advantage was taken of the latter privilege, and a silver medal awarded in addition to the first class certificate for a new Orchid, a difference of opinion arose between the Committee and the Council, and whether the medal was ultimately awarded or withheld has not transpired.

Another useful condition was also introduced to the following effect:—"The Committees will recommend awards to be made to very superior seedlings or novelties, or to recently introduced, re-introduced, or very rare objects, or to highly decorative plants, according to their merits. In the case of plants commonly grown from seed every year, the award will be made to the 'strain' and not to individual plants." Something of this kind had become necessary, for in the case of Calceolarias, Cinerarias, and even of Chinese Primulas and Tuberous Begonias, the varieties have been so rapidly multiplied, such a great advance has been made with these and other plants, that from a good strain of seed scores of varieties are obtained every year quite as good as those formerly certificated. Of course even now exceptionally distinct novelties are occasionally secured, and special awards are then justifiable.

The cultural certificate, an important award that ought to be granted freely in all cases where really good culture is displayed in the production shown, was continued. Botanical certificates were entrusted to the Scientific Committee, and beyond these were the Chiswick certificates. Here some explanation is needed, as there has been a misunderstanding with regard to the awards made at Chiswick. Plants, fruits, and vegetables sent to Chiswick for trial are inspected by the Committees at special meetings during the year, and certificates are awarded to those considered worthy of recognition, but these are more of comparative than absolute value, and are distinct from the certificates granted at the ordinary meetings of the Committees. With regard to most vegetables it is, however, indispensable that they be tested in the Chiswick gardens before they can gain an award from the Fruit Committee.

From the time the Fruit and Floral Committees were established

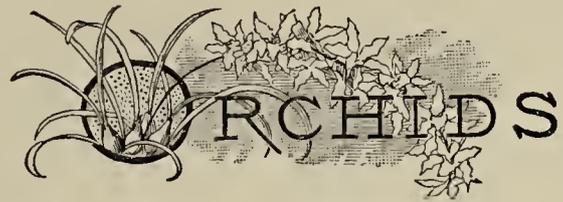
until within the past few years these two bodies were entrusted with the whole of the awards for novelties, but a short time since when the Daffodils became so numerous and popular, a special Committee, or rather a sub-Committee, was appointed to deal with them, and as it included several members of the Floral Committee, with some specialists added, the meetings were appointed to be held after the Floral Committee had performed their duties. This was found to answer well, and led to a suggestion that more sub-committees should be formed for special plants; the only result, however, was the somewhat hurried institution of an Orchid Committee after the arrangements for the year were announced. Doubts have been expressed as to whether this was needed, but in many respects it was very desirable that a special body should deal with these plants, and it was thought that members possessing an intimate knowledge of Orchids being in a minority on the Floral Committee, they were likely to be outvoted upon some occasions, though they were unanimous among themselves. At least there was as much justification for having a separate committee for Orchids as for Daffodils, but it was unfortunate that the same plan was not adopted with both—namely, having the meetings after the Floral Committee instead of at the same hour. It has been contended that the Floral Committee was weakened by this course, and when, as happened at several meetings, there was not sufficient to engage the Orchid Committee for more than fifteen minutes, it is obvious that members who give their services, and in some cases travel a long distance, might excusably wish their time had been better employed. Such difficulties would be readily overcome by altering the times of the meetings of the two Committees, it has been frequently suggested. Many are in favour of it, and I can see no reason why such a plan should not be adopted. Now the Fruit and Floral meetings are to be held at twelve o'clock instead of eleven as previously, it would be quite easy to let the Orchid meeting follow the Floral, the Society would utilise the services of more members, and be able to maintain the full strength of the Floral Committee.

Last year a new method was also tried in the registration of certificates, and with some slight improvements suggested by a year's experience, it will no doubt be an improvement upon the old system. The innovation consisted in recording the number of votes for and against each plant certificated, or proposed to be so honoured, so that the public can form some idea as to the relative merits of the plants brought before the Committees. Unfortunately a difficulty occurs in this respect, that while one plant may lose a certificate by a single vote, another of no greater merit might gain the award by one vote, depending perhaps upon the number of members present. It has been suggested that some definite proportion of those present should be required to vote in favour of a certificate before it be granted, but this would be difficult to carry out in practice, though it certainly does not seem fair that one vote should either give or prevent an award. It would not be unreasonable to require a majority of at least three votes to carry a certificate.

The Royal Horticultural Society's Committees and methods have been dealt with thus fully because they are rightly regarded as the leading authorities in these matters; but there is another Floral Committee—that of the National Chrysanthemum Society, which, in its own special department, performs an important service as any of the others. Nearly all the leading Chrysanthemum novelties of each year are now submitted to its inspection, and its decisions are invited upon critical matters of judgment. It is probably due to an oversight that "D., Deal," in his excellent leader last week reviewing the past year, omits all mention of this Society, though the National Rose Society is accorded the notice it so well deserves. Any unprejudiced observer must admit that the National Chrysanthemum Society has done good work, and it has in this been aided in no mean degree by the labours of its Floral Committee.

It is somewhat strange that the larger provincial horticultural societies have not adopted the plan of forming small select committees for certificating novelties. Such awards would possess more weight than those granted by judges, for in an ordinary way certificates are bestowed very liberally at country shows, and for such diverse objects that they do not bear any special value. Thus in some instances certificates are awarded for miscellaneous groups and exhibits of all kinds, as well as for novelties, and there is a prevailing idea that as such awards cost the societies nothing they can be given in lieu of prizes. There are always many good novelties that do not reach the London Committees until perhaps enterprising tradesmen have purchased and exhibited them, so that the institution of local certificating committees would not interfere in any way with the central committees. At the Royal Botanic Society's shows, and those held at the Crystal Palace and elsewhere, similar methods might be also tried.

Having devoted so much to generalities, a review of the plants that obtained honours during 1889 must be reserved for another issue.—LEWIS CASTLE.



ORCHIDS ON CEMENT BLOCKS.

MR. A. H. SMEE is always either making experiments, or encouraging his gardener to make them, in his interesting garden at Wallington. In one of his houses a *Laelia*, if I remember rightly, has been hanging from the roof near the back wall for some time. The wall is cemented. The roots of the plant reached it, clung to it, and have extended in a remarkable manner. Several other Orchids were then attached to pieces of cement flooring an inch or so thick, and, without an exception, the roots have "taken to" it with the utmost readiness, and sickly plants so attached have soon improved considerably. *Phalænopsis* and other kinds are pointed out with healthy roots clinging to the surface. Mr. Cummins mixed some cement and sand, thus making a new block, and it appears to be answering as well as the old. Lumps of cement are also being used in pots for Orchids instead of crocks and charcoal. A new house has been erected by Mr. E. Newton for Mr. Smees' fine collection of *Cattleyas*. It is dry glazed on the "reform" system, very light yet strong and drip proof, also amply ventilated. It is expected to answer well. A Peach house is similarly glazed, and by a simple contrivance boards can be fixed on the roofs of these houses for the insertion of a square of glass as may be needed, paint or putty not being required by the light yet strong galvanised bars.—VISITOR.

CATTLEYA O'BRIENIANA.

At a recent meeting in the Westminster Drill Hall, Messrs. Sanders & Co., St. Albans, exhibited a group of Orchids, including

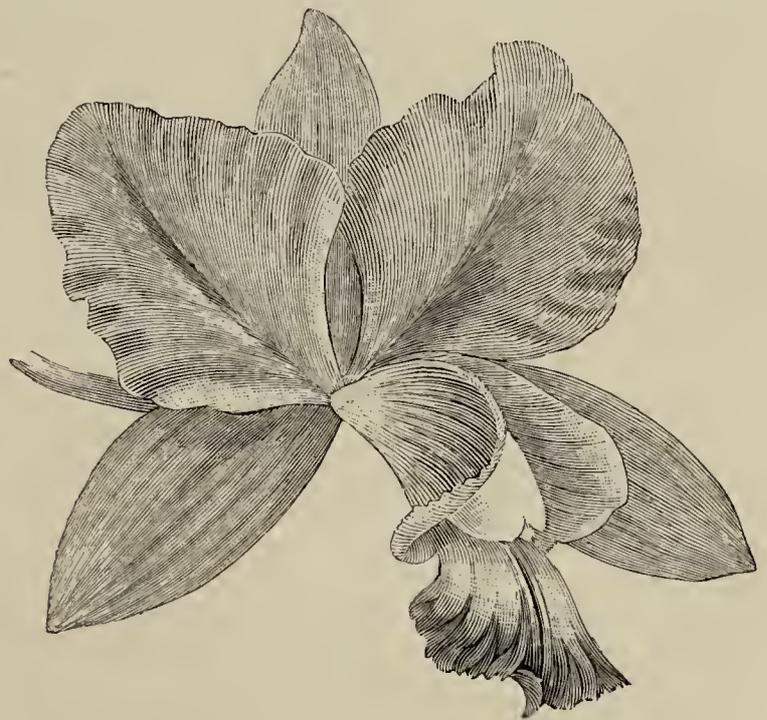


FIG. 4.—CATTLEYA O'BRIENIANA.

one under the above name, of which a flower is depicted in the woodcut (fig. 4). It resembles some of the small-flowered *Cattleyas*, and is probably a variety of one of these. In any case, however, it is attractive, the flowers of a soft rosy tint, a little deeper at the margin of the lip.

YELLOW TOMATOES.

I WAS much interested in Mr. Iggulden's article, page 525, on the above, but I must take issue with him as to the quality of Golden Sunrise. I am quite at one with him as to its beauty, &c.,

but I firmly believe it to be nearly, if not quite, the best flavoured Tomato grown. I am quite aware that it takes some years to educate your taste sufficiently to discriminate between the delicate differences of flavour in Tomatoes, and I can only suggest that Mr. Iggulden's taste is now in a transition stage. When fully educated, his taste will esteem Golden Sunrise at its proper value. I gave a plant to a gentleman who planted it against a wall, and to the same gentleman I sold several small quantities of fruit grown under glass. Now this gentleman is a Tomato connoisseur, and gives a good many dinner parties, and he came to me one day and said, "That yellow Tomato of yours is the best flavoured I ever ate, and all my friends say so also." Another gentleman, also a connoisseur, was continually asking me for some, and said he never tasted such a Tomato. Many others said the same, and only having planted four or five of this variety I found it hard to satisfy inquirers after Sunrise, for no sooner was a fruit ripe than it was wanted by several people. "The proof of the pudding is in the eating," as no doubt Mr. Iggulden has found out this Christmastide, and the proof of the high quality of Golden Sunrise is in the great demand for it by all who had tasted it. I prefer the evidence of so many gentlemen with highly cultivated taste to that of my friend, Mr. Iggulden, with whom I will agree to differ.—H. S. EASTY.

NOTES ON FORCING VEGETABLES.

POTATOES.

THIS extremely valuable root, although capable of being preserved from one season to another, is nevertheless required in a young state nearly three-fourths of the year, and various modes have been tried to produce this esteemed vegetable at an early period of the year. It does not require a high temperature, but like many other exotic vegetables it is extremely impatient of frost.

The most general and successful mode of forcing is upon beds of hot dung or leaves, or both mixed together. For the purpose a quantity should be prepared by repeated turning and fermenting, until all the rankness evaporates, and when in a proper state to make a hotbed it should be placed together to the height of about 3 feet. In the process of making the bed the dung and leaves should be well shaken out and pressed down with the back of the fork, but not trodden. When finished the frame and lights should be placed on. In a few days, if the dung has been properly prepared, the bed will be ready to receive the plants. A quantity of light soil mixed with some good leaf mould and manure from old Mushroom beds should be spread over the bed to the depth of about 6 to 8 inches. In this the Potatoes, which should have been previously started by being placed in boxes among leaf soil and well rooted, should be planted in rows about 15 inches apart, and 8 inches from plant to plant. They must not be allowed to suffer from insufficient water, and air should be admitted on all favourable occasions, or they will be drawn up weakly, and the crop will not be so good. The temperature should be from 50° to 60°, allowing it to fall a little during the night. Should frost or cold winds prevail the frames should be covered at night with mats, &c.

Where Potatoes are wanted very early they may be grown in pots, 15 size being most convenient. The pots should be well crocked and half filled with soil, three tubers being placed into each pot and covered with soil, arranging the pots in a temperature of about 60°, with a little bottom heat if it can be had. When they have grown about 4 inches or so, the pots should be filled with soil mixed with a little of Thomson's or Clay's manure, just leaving about half an inch for watering.

They can also be successfully grown in heated pits or frames without any bottom heat. The tubers must first be started in boxes, and be well rooted before being placed in the pits or frames. Medium sized tubers uncut with all the eyes rubbed out with the exception of the three strongest are the best. Planting is best done with a spade, and a little old Mushroom-bed manure can be placed in the bottom of the drill before the Potatoes are placed in, and they should also be covered with the same or leaf mould. A little of some artificial manure sprinkled along the line is never lost. The lights can be kept closed till the Potatoes are up, after that air must be given on all favourable occasions. A temperature from 50° to 60° suits them. When water is required it should not be given from the cold water tank, but be warmed a little before being applied. When the shoots are a few inches high the soil should be drawn to them with a hoe.

The sorts I have found do best are Mona's Pride, an excellent cropper and capital in flavour. There is no complaint when this goes to the table. Early Dwarf-top Ashleaf, the true old sort, is also first rate for frame work, and excellent in flavour. Sharpe's

Victor is also very good and forces well, but I like the two above mentioned quite as well.

CARROTS.

These are very easily brought to perfection by sowing the seed on hotbeds of dung or dung and leaves any time from November till they can be pulled from the early border in the kitchen garden. As a mild temperature only is required the bed need not be more than 2½ feet high after it has settled, and is ready for the seed being sown. After the frame is placed on the bed, a little more dung and leaves should be added, to bring the bed to within a foot of the glass. On this should be placed 4 or 6 inches of light sandy soil, and when it is considered in a fit state to sow the seed—that is, when all rank steam has gone off and a mild temperature is maintained—the seed may be sown broadcast and just covered, or it may be sown in drills 6 inches apart and half an inch deep. A few Radish seeds may be sprinkled over the bed and raked in, which will be found to prove acceptable. A temperature of about 50° to 60° will do very well, or even less towards spring.

When the seeds have germinated admit plenty of air, but avoid cold draughts. If they are too thick they should be thinned a little, but not overmuch, as they will be used when small. If the bed becomes dry water the same temperature as the bed must be given. Weeds must be kept down. If the beds become cold fresh hot manure should be placed round the frame, first pulling away some of the outside of the bed to allow a greater quantity of hot dung to be added. The best sort for forcing is the early French Short Horn.—G. HILTON.



EVENTS OF THE WEEK.—The Royal Horticultural Society's Fruit and Floral Committees will meet in the Drill Hall, James Street, Westminster, on Tuesday, January 14th, at 12 noon. In the afternoon the Rev. W. Wilks will read a paper on "Winter Gardening." The annual dinner of members and friends of the Gardeners' Royal Benevolent Institution will take place at Simpson's, on Thursday, January 16th.

— THE WEATHER.—In the south of England the weather of the past few days has been quite mild and spring-like, and upon one or two nights the temperature did not fall below 45°. Much rain has fallen, but the earlier part of Tuesday was extremely clear and bright, and the temperature was remarkably high, averaging in the metropolis about 52°, or more than 12° above the mean for the month. Indeed, it was more than 2° warmer than the average temperature for the whole year, and would have been just about right for the 1st of May or for the middle of October.

— THE SEASON ON THE WELSH COAST.—An occasional hoar frost is all that occurs here to remind us of winter, and even that of the feeblest kind, as will be gathered from the fact that Violets, Marie Louise and others are now plentiful, and have been since September, in the open garden near Barmouth. Last week I saw a fine basket of Chrysanthemums recently cut, and others growing and blooming freely in defiance of the elements, in the gardens at Tynycoed, Barmouth, Dr. H. Lloyd's. I also saw a fine specimen of Eucalyptus thriving well.—MAWDDOCH.

— THE GARDEN ORACLE.—We have received a copy of Mr. Shirley Hibberd's annual for 1890. Besides the usual tabulated and calendarial matter, it contains excellent selections of plants for cultivation, and lists of new plants. Several pages are devoted to the vegetable garden, commencing with reference to the Conference at Chiswick and enumerating the varieties selected there. Compact cultural notes are given on the different kinds of vegetables. The work is essentially useful and suitable alike for the gardener and amateur. It is published at 4, Ave Maria Lane, Paternoster Row.

— THE FLORISTS' LACED PINK.—A circular has been forwarded to us which states that a Committee has been formed with the object of establishing a National Pink Society, "to promote the cultivation of the Florists' Laced and Border Pinks." It is also proposed to hold Shows at the Royal Aquarium in June and July of the present year.

— WE have received from L'Horticulture Internationale Société Anonyme, Parc Leopold, Brussels, a flower and growth of a new winter-flowering Carnation, MADAME ARTHUR WAROCQUÉ, obtained from a sport of the well-known Souvenir de la Malmaison. The plant is of a sturdy dwarf-growing habit, does not exceed 12 inches in height. The flowers are large, well shaped, and of a brilliant red colour. They are produced very freely; five or six are open at one time. It is named after Madame Arthur Warocqué, a lady whose zeal and love for horticulture is well known in Belgium.

— THE WOLVERHAMPTON HORTICULTURAL SHOW AND FLORAL FETE is fixed for 15th, 16th, and 17th July next in the Public Park.

— TOMATO CULTURE was the title of a paper read by Mr. J. B. Riding before the members of the Ware and District Horticultural Mutual Improvement Society on Tuesday the 31st inst.

— GARDENING APPOINTMENT.—Mr. Henry Stride, late gardener to James Allen, Esq., Highfield House, Shepton Mallet, Somersetshire, has been appointed head gardener to L. J. Baines, Esq., Bawtry Hall, Yorkshire.

— MR. EDGAR NEWTON, glazing reformer of Hitchin, sends us a copy of his combined sheet almanack and memoranda form. It is, however, in twelve sheets, one for each month, and will be handy and useful in gardeners' offices and cottages.

— MANY will probably have learnt from the daily papers that the KING OF THE BELGIANS' PALACE AT LAEKEN, NEAR BRUSSELS, has been recently destroyed by fire. Fortunately, however, the handsome conservatory and collection of specimen Orange trees were saved.

— WE are requested to state that the date of the RUGBY CHRYSANTHEMUM SHOW FOR 1890 has been altered from November 12th and 13th already announced to November 19th and 20th, to avoid clashing with the Show of the Birmingham Society fixed for the first-mentioned dates.

— I FIND that LUCULIA GRATISSIMA lasts longer in a cut state if the leaves and stems are put into a large pan of tepid water about a couple of hours before they are wanted, care being taken that the flowers are not immersed, as they quickly become discoloured.—J. SMITH, *Henbury Hill*.

— FRUIT CULTURE.—The Drapers' Company of the City of London have sent to the Fruiterers' Company a donation of £105 towards the fund initiated by Sir James Whitehead, Bart., the late Lord Mayor, who is the Master of the Guild, for the promotion of fruit culture in our homesteads and cottage gardens.

— ON page 561 of the *Journal of Horticulture* for 26th inst. is a paragraph on BULLFINCHES by "T. A. C.," wherein is given a recipe for a winter dressing for small fruit trees. It would be a great benefit to your readers if "T. A. C." would kindly give the proportions of each ingredient used in the dressing.—GEO. WARE.

— UPON December 31st last, MESSRS. KELWAY & SON of Langport, entertained the whole of their employes at dinner. The chair was taken by Mr. W. Kelway, and a very pleasant evening was spent. Several appropriate speeches graced the occasion, songs, recitations, and instrumental music being also provided.

— THE RAINFALL AT CUCKFIELD, MID-SUSSEX, for December was 1.64 inch, being 1.23 inch under the average. The heaviest fall was 0.37 inch on the 22nd, rain falling on sixteen days. Total fall for the year 28.42 inches, 2.49 inches under the average of the past nine years. Highest temperature, 53° on the 22nd; lowest ditto, 20° on 12th; mean day temperature 43°; mean night ditto 39°; mean temperature 41°, being 2° above the average of seven years.—R. INGLIS.

— THE annual meeting of the READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION was held at the "British Workman" on Monday, January 6th, when a large number of members attended. Letters apologising for absence were read from the President (W. J. Palmer, Esq., J.P.) and Mr. Jas. Legg. Mr. Wm. Lees occupied the chair. The report of the Committee for the past year was read by the Hon. Sec., Mr. Jas. Pound, jun., and also a financial statement, which was highly satisfactory, there being a balance in hand of £17 12s. The officers were re-elected, and a committee appointed for the ensuing season. It is proposed to establish a library of works of horticulture for the use of the members.

— SIR JOHN T. D. LLEWELYN, BART.—All horticulturists, and many besides, will rejoice in the honour that has been conferred on this gentleman. As a country squire none could be held in higher esteem than he, where he is known best—in South Wales. A flying visit to his beautifully situated residence at Penllergare, impressed us with his devotion to his garden—his Orchids, Primulas, Auriculas, seedling Indian Rhododendrons in thousands, all being objects of his fostering care. The specimen Conifers, Rhododendrons, and other shrubs in the pleasure grounds, the wild Fern-clad banks, the kitchen garden sheltered with divisional hedges, all linger in the memory, and not less so the delightful reception the owner accorded his visitors. All friends whom we met, regardless of creed or political colour, had a good word to say for Mr. Llewelyn, and we offer to the new baronet our sincere congratulations.

— THE Annual Friendly Dinner of the Members of the GARDENERS' ROYAL BENEVOLENT INSTITUTION and their friends will take place, as usual, at Simpson's, 101, Strand, on Thursday, the 16th inst., after the annual meeting, when Edmund Yates, Esq. (*The World*) will preside. In order to ensure the comfort and pleasure of the company, the Stewards, Messrs. Webber, Monro, Dickson and Baker, have arranged that no tickets be issued after Monday, the 13th inst. The musical arrangements will be under the management of Miss Mary Belval.

— SOME remarkable examples of home-grown Liliiums have been brought under our notice by Messrs. Collins Bros. & Gabriel. From single bulbs planted less than two years ago large clumps of six or more well developed bulbs have been produced. The Liliiums were grown in the nursery of the firm at Hampton, the soil being a loam of medium quality, but a dressing of fresh cow manure was placed 6 inches below the bulbs prior to planting, and it is to this that their great vigour and unusual development is attributed. The variety is speciosum (lanceifolium) rubrum cruentum.

— STEALING GRAPES.—Mr. H. Balderson, Corner Hall, Hemel Hempstead, a member of the Royal Horticultural Society's Fruit Committee, recently had about 50 lbs. of Grapes stolen from his vinery, and two men charged with the offence have been sentenced to six months' imprisonment with hard labour. The members of the Fruit Committee seem to be much troubled with regard to their garden products, for it is only a short time since Mr. Blackmore prosecuted a man for stealing Pears.

— ON Monday, December 30th, the employes of MESSRS. J. R. PEARSON & SONS, Chilwell Nurseries and the Seed Warehouse, Nottingham, held their first annual social tea party and concert, when over one hundred sat down and enjoyed the repast provided by Mrs. A. H. Pearson, and who also accompanied the various performers during the evening. Songs, recitations, and several appropriate speeches quickly passed the time away, and the utmost cordiality prevailed. Votes of thanks were passed to the Messrs. Pearson for the kind interest they have always taken in any steps for the mutual improvement of their workmen. Mr. C. E. Pearson in reply said that it gave great pleasure to meet so many there, and anything his partner or he could do for them would not only be a duty but a pleasure. He hoped that there would always be the same good feeling existing between them, and in conclusion wished all a happy and prosperous new year.

— WE learn with regret that MR. WILLIAM H. BAXTER, who succeeded his father, and who for more than forty years has been associated with the Oxford Botanic Garden and the University Parks, is now incapacitated by infirmity for the performance of his duties. We understand that for some time past Mr. Baxter's impaired vision has occasioned considerable concern to his family and friends, and our readers will fully share with us the sympathy we feel for him in his affliction after being for so long a period so honourably connected with horticulture. We are glad to announce that the University authorities have marked their appreciation of his long and faithful services by a decree of Convocation, authorising the curators of the University chest to pay him annually the sum of £60, and this is supplemented by equal sums of £20, contributed by the curators of the Botanic Garden and those of the Parks. We cordially trust that Mr. Baxter may live to enjoy for many years his well-earned pension.

POTATOES.

PERHAPS a few words on last season's experience with Potatoes may not come amiss to some of your readers, especially just now when catalogues are being distributed from nursery and seed establishments.

In what glowing terms do they describe the varieties that are to prove such a boon to mankind. Disease-proof, disease-resisting, such enormous crops from so few pounds of seed, such cooking qualities—nothing that is good appears to be forgotten. To say that a certain Potato is disease-proof, is, in my opinion, a bold statement to make. No matter how sound the stock may have been, I doubt if there exists a variety which is not liable to the murrain, any more than there is any human being who is not liable to any malady common to mankind. I grew seven varieties last season, and only the following will be retained:—

Sharpe's Duke of Albany.—This did not crop heavily, but the quality was such that my master said he had never eaten a better Potato. We used it as a second early. It was not disease-proof, but I shall plant it freely this coming season.

Stourbridge Glory.—Not disease-proof, but it is the best late Potato I have grown. It did not crop heavily, but, like Duke of Albany, the quality made up for all deficit.

Snowdrop, though a good Potato, will be planted sparingly, on account of its taking the disease so readily.

Magnum Bonum.—This still holds its own as being a fair cropper and of good quality, though not disease-proof.

It seems at the present time that quantity and size are more valued than quality and a fair crop; indeed the tendency of the age seems to be to get everything as big as possible, but I cannot regard bulk as the standard of excellence in Potatoes.—J. M., *North Aston*.



THE ROSARIANS' YEAR BOOK.

MR. D'OMBRAIN says in his brief preface to the issue of this work for 1890, that though his "little craft is not so hulky as some of its predecessors, yet may prove that, like the old Spanish galleons of former days, she carries a valuable freight in a small space"—a little mixing of genders, perhaps, but the craft is well laden, and is not so small as to need the smallest apology. Sixty-seven pages of well printed letterpress is surely sufficient, especially when we find this so good, and varying as it does from grave to gay. Besides the Captain's contributions on Mr. R. N. G. Baker and his triumphs, and the season's review, Mr. C. E. Fraser discourses on Rose-growing in the Mauritius, the Rev. H. Temple Frere contributes "Notes by an Old Fogey" on the Roses of past days, Mr. Alexander Hill Grey sends "jottings" such as only he could jot—readable, amusing, yet not devoid of useful hints—Mr. John Haikness defends the Manetti as a stock, and gives his reasons, adducing also supporting testimony in its favour. Mr. George Paul tells which he has found the best autumn Roses; Mr. T. W. Girdlestone descants on decorative Roses, and amongst others names three "which no one need fear to plant holdly in groups—Hon. Edith Giffard, Madame Lambert, and Marie Van Houtte." The closing chapter is, as usual, on the "Weather of the Rose Year," by Mr. E. Mawley—a subject which few could treat so interestingly. We have only further to mention that the work contains an admirable portrait of Mr. Baker, and that Messrs. Bemrose & Sons, Old Bailey, London, and Derby, are the publishers.

LONG NAMES.

THE Secretary of the R.H.S., as quoted in your last (page 10), has many sympathisers in his lamentation over Rose nomenclature. It is earnestly to be hoped that what he writes will be attended to. No Rose ought over to have more than two names. At the same time it may be remarked that the Rose public, to a certain extent, has the remedy in its own hands. Judges will hardly demur at a title cut short, and even French families will be played out at last. The British public has a way of its own in dealing with such difficulties. Just as printers will make sense out of copy submitted to them, not always to the satisfaction of the writer, so if names are not English they have to become such. What is the history of the "Bull and Mouth" in the City? It commemorates the taking of Boulogne harbour in the reign of Henry VIII. Henri Quatre at another time made sense, though hardly appropriate, as Angry Cat, and when his master brought home the new mare Desdemona, the groom at once recognised in her name Thursday morning. Sailors are great hands at this, witness "Hirondelle," Iron Devil; "Bellerophon," Billy Ruffian. Dean Swift derived "Ostler" from Oat stealer, and "breeches" from bear-riches, but that perhaps was a little far-fetched. I think it is Dean Hole who has introduced us to Senna Tea Vaisse, and Glory to thee, John, or Die John, as may be preferred. I myself can add another, met with only the other day, which is a case, however, rather of lengthening than of shortening. The well-known Niphétos is Greek for the snowy one; this is more often called Niphétus, or Niphéter, from which the transition has been rapid to St. Peter. Perhaps a unique instance of a Rose being canonised. There are saints, however, that deserve it less.—A. C.

DRESSING ROSES.

As no one has replied to my friend Mr. Pemberton's letter in last week's Journal, and as I believe it is calculated to do considerable injury to the cause for which I know he is as anxious as anyone—the

well-being of the Rose and of the National, I do not think it ought to pass unnoticed. May I not ask my good friend whether it is not a very unusual thing, when a motion has been put forward by the Committee of any Society, that any member of that Committee should consider himself absolved from his allegiance so far as to find fault with that for which, even though he were not present, he is responsible? However, let that pass.

If I understand Mr. Pemberton's contention aright, it is that (1) dressing is necessary in the case of some Roses, but that it is difficult to ascertain where the dressing oversteps the limits of the manipulation. Allow me to say that when the subject was discussed Mr. Pemberton's name was mentioned with this adjunct. No one could object to the dressing which he gives his Roses, and admiration was expressed at the skilful way in which he made them display their charms to the best perfection, and such dressing the rules of the Society acknowledge to be fair. (2), He seems to think it would be impossible to distinguish when a Rose was overdressed. This is one of those things which sound very well in theory, but which practice very soon demolishes. When you see a Marie Baumann so treated as to resemble in form and outline an A. K. Williams, when you have a La France with all its outside petals turned back, or a Madame de Watteville made into an imbricated flower, or a box of Teas with the centre standing up erect, and the outside petals lying flat on the board, there can be no doubt as to how that has arisen, and it is practices such as these which the new clause condemns. I think Mr. Pemberton must recollect some Roses at the Crystal Palace Show which were glaring examples of this overdressing. I believe that the object is to make the Rose look large, and that this rage for size is at the bottom of all the mischief.

But the strangest part of Mr. Pemberton's letter is that wherein he infers that the disqualification extends to the box, and not to the bloom only, and that the decision is to be left to some other authority than that of the judges, whereas it is with them that the decision is specially designed to rest; indeed it simply amounts to this, that in a box the one "rule in method of judging" would meet the case. The judges go through the boxes where points are to be considered, and they discard amongst the bad blooms those that they consider overdressed, and as in ordinary judging they give no statement as to which Roses they consider bad or good, no more will they be called upon to declare which blooms they consider overdressed. Mr. Pemberton is too experienced a judge to require any help from others, and I think most Rose-growers would be satisfied that he would as readily discard the overdressed Rose as any one of them.

After all, the flagrant cases in which this practice has been adopted are very few, and the object of the Committee in adopting the rule was to prevent its spreading; and now that it has been condemned I know that those who used to do it will cheerfully submit to the rules, and I hope that others may be deterred from following their example; and so far from fearing that the rule will occasion any interruption of that peace and goodwill which has marked our exhibitions, I believe that it will tend to the more honest and truthful exhibition of the Rose.—D., *Deal*.

I ALSO was unfortunately unable to attend the annual meeting of the National Rose Society, probably from the same reason as Mr. Pemberton; so I have delayed a week, hoping that someone who was present would answer his letter.

I am quite of his opinion that dressing is often beneficial and desirable, and sometimes necessary; everything seems to turn on the words of the new rule, "so as to alter their character." As to Souvenir de la Malmaison, I never to the best of my recollection saw, or expected to see, this Rose in Mr. Pemberton's magnificent stands; nor do I think, if he does show it, that it will make any odds how he treats it. Beauty of Waltham I can never get of the Marie Baumann shape at all, and it would take a very clever artist to make my specimens look anything like it; but Mr. Pemberton's grand culture does bring it more of this form, and I believe this fact is duly acknowledged and recognised. Madame Willermoz is, to my mind, the Rose to take as an example when speaking of dressing; for, if the strong temptation to turn down the outer petals is yielded to, there is no doubt that the natural character of the Rose is altered, though I cannot help confessing that to my eyes it is altered for the better.

Mr. Pemberton asks on what evidence are we to decide that such an alleged alteration of character is the result of dressing; but surely he knows as well, or better, than anyone. Even if no creases are visible in the petals, drawing the bloom lightly through the hand from beneath will cause the turned down petals to spring back to their former places.

Rule 1X has always seemed to me undesirable; but it is not new, was not (I think) altered at the last meeting, has never to my knowledge been made use of, and will, I hope, remain a dead letter.

I would like to add a note as to Rosa laxa. I should by no means find it an advantage, as the introducer seems to think, to have stocks which do not grow in September. I do a great deal of budding in that month, and a considerable and most useful amount of rebudding takes place at that time of stocks whose first buds have failed.—W. R. RAILLEM.

CLIVIAS.

A FULL historical and descriptive article on the Clivias was published in this Journal, page 290, April 11th, 1889, in the course of which reference was made to a group in Messrs. Laing & Sons' Nursery, Forest

Hill. We are now enabled, by the courtesy of the firm named, to give an illustration of the group in question (fig. 5), which conveys an accurate idea of the decorative value of such plants.

perhaps seven years old, and it may be expected that the progeny of this and some other varieties will constitute a fine strain. Mrs. Laing is another of the same character, rather lighter in colour, but with excel-



FIG. 5.—CLIVIAS AT FOREST HILL.

One of the most conspicuous in the group was John Laing, with an umbel over a foot in diameter, containing twenty-two flowers, each $3\frac{1}{2}$ inches across; the divisions of the corolla broad, rounded, rich deep orange red, the centre creamy yellow. The plant was a strong one,

lently formed flowers; this was certificated a year or two since at the Regent's Park Royal Botanic Society's Show, and at the Crystal Palace. For several years past seedling Clivias have been raised at Forest Hill, and there are now hundreds of young plants in various stages, many

having now flowered. In about three years, if the plants are grown strongly, flowers are produced, but their best characters are not seen until they are five or six years old, and if in the meantime they bear a crop of seed it often weakens them to such an extent that the flowers are greatly deteriorated for a season or two. Out of a list of twenty-nine named varieties the following were the best in flower when the illustration was prepared, besides those already described. Orange Perfection, rich clear orange, well formed flowers; sulphurea, pale sulphur tint, compact truss, very distinct; Purity, orange red with a light centre; delicatissima, a large flowered variety of a soft orange tint; salmonea, a pale but clear salmon coloured variety; aurantiaca compacta, very free compact trusses, medium sized, good shaped, orange tinted flowers; Brilliant and Glow, both of high colour and excellent habit.

WANTED, A PUBLIC HALL FOR HORTICULTURE.

ON November 13th, 1888, a meeting of exhibitors and others interested in the work of the Royal Horticultural Society was held in the Council Chamber at Victoria Street to consider the expediency of any further occupation by the Society of the Drill Hall in Westminster. The meeting was of a satisfactory character both as regards numbers and the character of the persons present, for all present were workers in the concern, and any decision arrived at by such a meeting was felt by all to be sufficient for the immediate purpose. Acting on a conviction that I believed was shared by many, I made a definite declaration to the effect that the Drill Hall had proved unsuitable for the Society's purpose, and might with advantage be vacated at the close of the first year's tenancy. Having moved a resolution to this effect, Mr. Harry Veitch sprang a mine beneath my feet by stating that the Society could not legally hold floral meetings in the offices in Victoria Street, because anything in the nature of an exhibition was forbidden by the terms of the tenancy. The show of hands placed myself and my seconder in a minority of six. I have had such a run of good luck in carrying proposals that it was an enlivening change to be so completely beaten, but, like the compliant one that Butler sets forth in a supposititious case, I was "of the same opinion still," and to this hour I sigh for a place of meeting in which the flowers can be seen, and to which the public will resort to admire them.

Immediately after that meeting I proposed to friends interested in the affairs of the Society the desirability and possibility of obtaining a hall of our own for our meetings, and from that day to this I have occasionally discussed the matter, but quite rarely have I met with any encouragement, for the dread question always appears to block the way—How is the thing to be paid for? The question of primary importance is as to the need for a place of meeting that will be under our own control, and if not absolutely, at least in some part, the property of the Society, or of some corporation operating in harmony with it, and with a view to mutual interests for the public good. The thing having been talked about vaguely—as must happen in such a case—it appears to me in the nature of a duty to place before the horticultural public an outline of the thing that appears to me to be wanted, and of the means that appear to me suitable to bring it into being.

We want a hall for horticulture. It should be in a central position, convenient for access from leading roads and railways, and the construction should adapt it for flower shows, dinners, and other festivals, committee meetings, offices, and perhaps a general mart or exchange for miscellaneous business, as, for example, the display of plants for sale, the accommodation of trading firms for meeting customers, and for housing samples, models, drawings, and other materials required in business transactions in connection with agricultural and horticultural industries. There would be needful two or three (or more) well-lighted rooms adapted for public meetings, in addition to one spacious and noble hall, lighted in the way of a picture gallery, with orchestral platform and such other necessary features as would render it complete for the convenience of flower shows and festivals. Should the idea take shape it will grow as the plan is developed, and it should be comprehensive as a place of resort for horticulturists, who only need some such centre of operations to assemble in thousands where, as the case now stands, the habitués meet only in scores, and fresh faces are rarely seen. Country gentlemen, participating in the pleasures of the London season, would make a place in the list of things to be done of such an attraction as the hall would offer them, provided only the thing obtained success commensurate with the purpose in view.

One of my friends who has heard of my proposals has made a public offer of a subscription towards the project. As a thing to be initiated by eleemosynary contributions it should have no help from me, and I cannot imagine that many of my friends, to whom from time to time I have spoken on the subject, would put their hands to anything of that kind. There is only one foundation proper for a horticultural hall, and that is the commercial foundation. It must pay its way, or prove itself a mockery, a delusion, and a snare. I have not attempted any estimate of the amount of capital that would be required, but not having in view a cheap shanty or a bad imitation of a railway terminus, a considerable sum would have to be invested, and business must be looked for to ensure reasonable returns. The £100 per annum now being paid by R.H.S. for occupation of the Drill Hall ought not to be taken into account in this connection. I may be outvoted any number of times, but I feel sure that were a door to open leading to something better

and within the Society's means, the exodus would be speedy and unanimous. The Society is growing, and should grow. If it can pay £100 now for a year's accommodation, the day should be near when it could as easily pay a thousand. It is now, what it has not been for fully thirty years, a horticultural society; and the public are now taking a new interest in its work, and are daily more and more disposed to assist it, as is ever the case with a good thing that inspires confidence. The activities of the horticulturists carry them to all the ends of the earth for places of festivity and business. There may be a good side to the discursive system that fixes an exhibition in this spot and a dinner in that, but a recognised and generally acceptable central home would be an incalculable advantage to horticulture at large in the metropolis, and many sources of income would arise for a central hall that could afford accommodation for exhibitions, dinners, public meetings, and official correspondence for various institutions, both of London and the provinces.

This letter is not to be regarded either as a prospectus or a preliminary to any distinct business proposition. The subject has been lightly discussed in an erratic way, and the time appears to have arrived when I should give something like definite expression to my views that I may obtain the sympathy and aid of practical men in formulating a plan should opinion tend favourably that way. For the present it is with an idea that I should be quite content to see carried out independent altogether of any interest, sentimental or commercial, I may be supposed to have in it. I am fully occupied and happy in my work, and in no haste to make a mountain for the pleasure of piling a cairn on its summit.—SHIRLEY HIBBERD.

FLOWER CULTURE FOR PROFIT.

TEA ROSES.

AFTER about eight years' experience in marketing surplus produce I have arrived at the conclusion that nothing pays so well as Tea and Noisette Roses, and were I in a position to do as I please at least three houses would be devoted to them; as it is, they have largely to be grown in connection with various other plants, and not unfrequently the Roses are at a disadvantage accordingly. What they require and merit is plenty of room and light, with a moderate amount of heat, and if either of these conditions are withheld the growth is liable to become weak, mildewed, and insect-infested, the flowers as a consequence being few and poor in quality. Undoubtedly Tea Roses on their own roots are by far the best, either for planting in beds or for pot culture, but as these cannot often be purchased the would-be successful grower must perforce raise his own stock of plants. Luckily this is by no means a difficult matter. The first proceeding should be to purchase at once not less than three strong plants in pots, each of the selected varieties; these, when received, ought to be turned out of their pots and examined. Some perhaps will be found with few roots, drainage clogged, and the soil generally in a sour state, while a few—the minority I am afraid—may be in a healthy semi-rootbound state. The former should have the old drainage, and about half of the soil carefully picked away from the roots, and be repotted, using much the same size pots they were previously in, these being clean and well drained, and a compost consisting of three parts of good turfy loam to one of leaf soil or old Mushroom bed manure, sharp sand being freely added. The root-bound plants ought to be given a moderate shift, using soil as just advised, and potting rather firmly. All should then be placed in a light forcing house, and will be all the better for being partially plunged in a fairly brisk bottom heat. This should promote a free floriferous growth, and the more blooms there are the greater the stock of suitable cuttings.

Soon after the blooms have been cut, with about half of the shoot attached, the lower half will be fit for making into cuttings, being firm, yet not too hard. Take each off with a "heel," or very thin portion of old wood attached, and either insert singly in 2-inch pots, or else dibble a number into boxes just deep enough to admit of a square or squares of close-fitting glass being laid over without pressing upon the Rose foliage underneath. A loamy soil with plenty of sharp sand added is most suitable for cuttings, and these should be firmly fixed, taking care that they press against the bottom of the holes made with a blunt dibber. The cuttings should have the benefit of a fairly brisk bottom heat, and be kept closely covered with glass, sunshine being carefully excluded. Thus treated they strike root in a very short time, and the first important detail is mastered. In many instances cuttings may be obtained from various home-grown plants, but if a good stock of strong own-rooted plants are desired the propagating should be persevered with as early in the year as possible. We are invariably more successful with cuttings in March and early in April than subsequently, or when the sun has gained greater power.

Many succeed in striking Tea Roses only to spoil the plants later on. Once rooted they must be kept growing strongly, any check in the earlier stages of growth causing them to become stunted and useless. Instead, therefore, of leaving the cuttings

in boxes or small pots till they are badly root-bound, the former should be early potted off singly into 3-inch pots, and the latter shifted into 5-inch pots, all being kept growing in a moist heat, such for instance as a Cucumber, Melon, or Tomato house. On no account should these plants be allowed to flower while being prepared for late autumn and winter flowering, the wisest plan being to pinch out the buds whenever they show; also carefully keep them clear of dry hot shelves and the hot-water pipes, otherwise red spider may effect a lodgment and quickly ruin the plants. When the houses are becoming overgrown with Cucumber and Melons, or say about the middle of May, room ought to be found for the young Tea Roses on a light staging in a moderately warm greenhouse, where they must be kept clear of the other occupants, syringed once or twice in a day, and otherwise well attended. By this time they will have become established in their pots, and before they are root-bound should be given another shift, this time into 8-inch pots, or slightly larger if extra strong. Thus liberally treated they will soon throw up strong shoots or suckers from the base of the stems, and it is these suckers that give own-root plants such a decided advantage over any worked on stocks. We have frequently succeeded in raising plants that need yet another shift by midsummer, and this is always given. In each and every case clean well-drained pots should be used, and if there is but little fibre in the loam add more leaf soil and old Mushroom bed manure as well as charcoal freely.

Innumerable Tea Roses in pots, both old and young plants, are ruined by being too much exposed to all weathers in the open air. Only during the hottest and driest portion of the year, or say July, August, and the early part of September, should they be stood in a sunny sheltered spot, being housed before the pots become saturated and the plants badly mildewed. In reality, they are best kept under glass altogether, especially in the colder districts and where the rainfall is heavy. The greatest pains should be taken to keep worms out of the pots, the latter being set on a hard ash bottom, ashes also being the best material for covering the pots.

During the winter a light warm house, the temperature of which seldom falls below 50° during the night, and is maintained from 55° to 60° in the daytime, is the best position for Tea Roses in pots during the flowering period, cold currents of air being excluded as much as possible. They will succeed fairly well in a higher temperature, but the blooms are much smaller and the plants are liable to fail more quickly than is the case when less hard forced. Plants in a vigorous state may well be allowed to flower late in the autumn and any time during the winter, but as a rule the best supplies will be cut during the spring months and till open air Roses are available. Quite young plants are most given to push up strong branching suckers, and it is the latter that produce the greatest profusion of fine buds or blooms. They ought never to be kept dry at the roots, and if the pots are well filled with roots liquid manure of some kind, though not too strong, should be given frequently. When once a good stock of plants is raised abundance of good cuttings will be available every spring, and it is advisable to raise a number of fresh plants annually, the more weakly or exhausted old plants being either planted out against a sunny wall or thrown away.

All old plants after their serviceable period is over, or say early in July, may well be attended to at the roots. In some cases much of the unoccupied soil may be picked away and the plants returned to pots of much the same size they previously occupied, while others much root-bound should be given a shift. At the same time most of them ought to be lightly pruned, the aim being to cause the plants to push out strong growths early in the summer, and this if kept from flowering will be of good service during the forcing season. Varieties that do well in pots are Catherine Mermet, The Bride, Niphotos, Madame Falcot, Souvenir d'un Ami, Rubens, Isabella Sprunt, Marie Van Houtte, Alba Rosea, Comtesse de Nadaillac, Anna Ollivier, Madame Lambard, and Hon. Edith Gifford. The relative values of these will be given shortly, and also additional remarks upon Tea Roses trained over roofs and otherwise.—M. H.

POINSETTIAS AT MARSTON.

At the present time these make a fine display in the Marston Gardens, represented as they are by large numbers of well-grown plants, crowned with their bright-coloured showy bracts, far above the average in size. The somewhat low-roofed stove, a compartment of which is occupied with them, does not display them to the best advantage for inspection; but a portion of the stock, arranged in the most roomy fernery, lends a brightness unknown to this structure at any other period of the year. They look surprisingly well among the Ferns, their bold heads being better displayed than any other arrangement can afford. Two distinct varieties are noticed, the one at its best at the time of my visit being much earlier than the deepscarlet form generally

grown; the earlier one, too forms much the neatest break, and is the most effective. In growing the two an advantage is gained in the length of time the display can be maintained, and their value is greatly enhanced where they are used largely for room and dinner-table decoration, as is the case at Marston at this season. No flowers create greater admiration than well-grown Poinsettias when judiciously used on the dinner table for evening parties, and if care is taken to place them in warm water they can be used for two or three consecutive terms by change of design without becoming monotonous.

The whole of the plants are alike healthy and vigorous, though not possessing a great length of stem, and were furnished almost to the pots with leaves, a sufficient indication of perfect health. The summer-struck stock bears single stems and bracts, older plants being represented by several, and on one in particular I noticed a single stem carrying two fine heads. Their late summer and autumn treatment this year was cool, for I am told that for some time previous to being housed they had no protection from the elements, or rather only what little the walls of the pit wherein they stood provided, until the beginning of October. After they were taken indoors they were subjected to a dry airy atmosphere, and their present condition bears ample testimony to the suitable treatment bestowed upon them.—VISITOR.



THE NATIONAL CHRYSANTHEMUM SOCIETY.

A MEETING of the General Committee of the above Society was held in Anderton's Hotel, Fleet Street, on Monday, January 6th, at 7 P.M., R. Ballantine, Esq., in the chair, a good number of members being present. The minutes of the last meeting having been duly read and confirmed, Mr. Holmes stated, with regard to the Judges appointed for the Centenary Exhibition next November, that Mr. J. Douglas having a prior engagement could not accept the appointment, and Messrs. Barron and Roberts were also unable to attend; the following reserve Judges were therefore invited, and had accepted—namely, Messrs. Harry Turner, W. Wildsmith, and G. Miles. The Hon. Secretary also announced with deep regret the death of a respected member of the Committee, Mr. W. Blake, which took place on December 26th. For a number of years he was a regular attendant at the meetings, and had taken considerable interest in the proceedings. Mr. Holmes proposed, and Mr. Addison seconded, a vote of sympathy with the widow and family, which was supported by several members, and carried unanimously.

The dates of the early and late shows for the next season were then fixed for September 10th and 11th, 1890, and January 7th and 8th, 1891, Messrs. G. Gordon and R. Allan being appointed the Judges for Chrysanthemums. A schedule was prepared for the classes to be provided at the Royal Aquarium Show on October 15th and 16th, 1890, and the Hon. Secretary was authorised to expend £20 in prizes arranged on the same basis as at the November Show, the classes being as follow:—Twenty-four Japanese in not less than twelve varieties; twelve Japanese distinct; six Japanese, distinct (amateurs); six blooms, white, one variety; six blooms, yellow, one variety; six blooms of any colour except yellow and white, one variety; twelve Pompons, not less than eight varieties, in bunches, three trusses to form a bunch; and six Pompons, distinct (amateurs). A hearty vote of thanks was accorded to the members who acted as Stewards at the recent successful annual dinner. A resolution was adopted with regard to the medals. Eighteen Fellows and members were elected, making a total of 691. The Guildford, Stamford, Isle of Thanet, and Auckland (New Zealand) Societies were admitted into affiliation; and Mr. Drain was elected on the General Committee in the place of the late Mr. Blake. It was announced that Messrs. Castle and Gordon had made some arrangements for a Conference at the Show on January 8th, when Mr. Kipling had promised to read a paper on "Are Chrysanthemums Wanted at Midwinter?" and several questions would also be proposed for discussion.

THE NEW CATALOGUE.—Mr. Holmes stated that it was proposed to issue a new edition of the Catalogue during the present year, and it was desirable that the Committee, Messrs. Lewis Castle, George Gordon, and C. Harman Payne, should proceed with the work. As a permanent Committee he did not think they required any special authorisation, but as it would necessitate the expenditure of a large sum of money it was perhaps desirable to bring the matter before the General Committee. He remarked that the 1888 Catalogue had sold well, and would yield a profit; he therefore supposed there would not be two opinions respecting the desirability of continuing the work. It was then proposed, seconded, and carried, that the matter be referred to the Catalogue Committee to proceed with as rapidly as convenient.

CHRYSANTHEMUM LADY BLANCHE.

UNDER this name Mr. Stevens of Putney has grown a number of plants this year, the blooms of which were of the greatest value and in large demand for wreath-making and decorative purposes at Christmas and subsequently. Other late sorts were grown, but not one of them

was so fresh and floriferous as Lady Blanche. It is a Japanese variety with medium-sized flattish blooms with slightly curved clear white florets. The plants were not topped at any time, and made natural breaks about 18 inches from the pot, and the terminal buds were thinned. After Christmas hundreds of blooms were as fresh as blooms could be, and were being cut and sold daily. Plants of the same character would have made many a gardener's heart rejoice if he could have had them for cutting from during the festive season. Mr. Stevens regards this as by far the most useful late Chrysanthemum he has grown, and he thinks he has tried most of them. It is not an exhibition variety.—J. W.

KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.

Most persons will be pleased to hear that this Society, which may justly be termed the pioneer of large cut bloom classes and Chrysanthemum groups in the south of England, is in a much better financial position than could be said of it in 1888, when, owing to adverse circumstances the Committee were only able to show a balance on the right side of £1 18s. 10d., whereas after the last Exhibition (1889), something over £65 will be carried forward. This will enable the Committee to improve their schedule of prizes somewhat, perhaps by adding to some of the prizes, and making other classes hitherto not included.—E. M.

CHRYSANTHEMUM BOULE DE NEIGE.

This variety is indispensable for blooming at Christmas. The blooms are borne in profusion on dwarf bush plants in 6 and 7-inch pots. This size pot is quite large enough, as it is not a tall grower. The flowers are of the purest white.

CHRYSANTHEMUM MOONLIGHT.

The flowers from crown buds and terminals differ considerably in many varieties, but in no instance that I have noticed is this variability more marked than in the case of the Japanese Moonlight. Those from crown buds are remarkably close, the florets incurving, so as to render the bloom almost as round as a ball, and it is not often they attain an exhibition size, solidity usually being outweighed by more bold open flowers. There is naturally very much less substance in the bloom obtained from terminals, but they are far more beautiful. We had a number of both kinds of blooms for Christmas, but the terminal flowers were the most valued. The outer florets of the latter are of good length and nearly straight, while the inner ones incurve prettily without being formal, and an elegant flower, such as ladies delight to wear, is the result. Moonlight is of rather straggling growth and not very floriferous, but it is one of the best for affording a few superior blooms towards midwinter.—W. I.

FORCED LILY OF THE VALLEY.

We send you a few spikes of our forced Lily of the Valley (Berlin crowns). They have been in great demand here the last fortnight along with Roman Hyacinths for dinner table decoration, and on mossy banks for a concert and a ball. They have been highly valued and admired.

As other gardeners like myself have not a specially prepared pit with a hot-water tank to force this plant in, perhaps the plan we adopt may be worth a corner in your valued paper. A hotbed of leaves and stable litter was prepared, turning the material a few times to let off the rank heat. When making up the bed was well trodden, and a two-light frame put on. Previously the crowns were planted thickly and firmly in boxes 2 feet long, 15 inches wide, and 4 inches deep, stood on an outside border exposed to all weathers and frequently watered. On the 14th November we had the boxes placed in the hotbed (1000 crowns), covering the crowns about 2 inches with old leaf soil. By the aid of a stick thrust in the bed we keep a careful watch daily, giving air when too hot, and covering the lights in cold weather. For a week the mats were kept on day and night, with a little ventilation to let off steam. When we saw the first blooms beginning to open, and taking advantage of a mild day, we shifted all the boxes to a light house having a temperature of 50° to 55°, and during two or three sunny days it rose to 75°. Early changing from frame to house is important. The plants suffer a slight check taken from the bottom heat, the all-important aid to start dormant life into activity at this time of year, but the check is slight. I noticed the first flower die on a few early spikes, but the bulk showed no change, and we began cutting on the 18th of December foliage and flower as natural and developed as when growing outside in June. We filled twelve pots with crowns and placed them in the same bed, but strange to say they are a failure; only two or three spikes came up in each pot, and I am positive we did not lose twenty crowns of the 1000 in boxes.—T. A. TODD, *Sundridge Park, Bromley, Kent.*

[The Lilies received are as fine as could be desired.]

GOOD VEGETABLES.—I should like to add a few more to the list already given by "J. L. B." on page 554 in last volume. In Broccoli he left out Michaelmas White, which is very far in advance of Walcheren, grows more compact, and is of better flavour. Cauliflowers Sutton's Favourite and Autumn Mammoth are two excellent Cauliflowers. Peas, Veitch's Perfection, one of the oldest, but still one as a main crop it is very hard to surpass. Duke of Albany and Sutton's

Satisfaction are two good Peas; Omega is good as a late variety. I gathered several dishes of them the last week in October. Of Potatoes, Sutton's Seedling and Abundance are favourites.—W. F.



HARDY FRUIT GARDEN.

REMARKS ON PLANTING.—There is a right and a wrong way in doing anything connected with fruit culture, and too often the inexperienced hit upon the latter much more readily than they do the former. Deep planting is the mistake most commonly made, and a very costly blunder it proves. It does sometimes do away with the necessity for stakes, but that is the only point in its favour, while there are several very important reasons why deep planting should be avoided. The most profitable trees and bushes are those kept rooting near the surface, but if the principal roots are buried deeply at the outset nothing short of lifting and replanting will bring them to the desired position and cause the formation of the requisite root fibres. Roots have a natural tendency to strike downwards, and it is only by planting near the surface, occasional root-pruning when the trees are young, and mulchings of manure or leaf soil, that they can be prevented from getting to undesired depths. It should be borne in mind that in very many positions, and especially near garden walls, the original depth of soil is being constantly added to; and it may be trees planted shallow at the outset may yet eventually have their collars far too deeply buried. Trenched soil in particular is apt to sink considerably and unevenly, and if in a moderately dry state at planting time this should be firmly trampled and made as level as possible. In any case it is advisable to plant slightly above the ordinary level, this being absolutely necessary where the land is naturally heavy, rich, and cold. In some few instances it may be a good plan to pave the intended site of a choice border, say just above the subsoil, with either a good layer of stones, brick ends, or mortar rubbish, this to a certain extent keeping the surface soil drier and warmer, and also checks a downward root-action. As a rule, however, there is little need for this, the better plan being to plant high and to favour the surface roots as much as possible later on. Ordinary garden soil, unless for some time previously occupied by fruit trees or bushes, usually suits young fruit trees better than a rich compost, though fresh loam, turfy or otherwise, and burnt soil and rubbish, may often be added to the former with advantage, a good sprinkling of half-inch bonés also acting beneficially for several years. Soil already exhausted of much of its fertility ought to be largely removed and a rich loamy compost, and with which burnt soil, charred rubbish, and bones are freely incorporated, substituted. This relates more especially to the choicer wall trees, trenching old sites in the open, adding fresh soil to the shallow holes made for the trees and bushes, being all that can be afforded in most places. In planting, whether the lower tier of roots shall be spread out flatly and evenly from 4 inches to 6 inches below the surface, must depend upon the quantity or depth of roots each tree is furnished with; but in any case the upper roots may well be spread out fully 6 inches above the ordinary level. If the soil is heavy, lumpy, or rather too moist the least that can be done is to well surround the roots with fresh compost, making this rather firm. It must not be omitted that all broken ends of roots should be cleanly cut off and very long straggling roots shortened, the former facilitating heating, the latter causing the formation of more root fibres. Every root ought to be spread out to its full length separately and in a horizontal position, the reverse practice—viz., bundling them together into a hole too small for their reception, being particularly objectionable. Trees in the open should be properly staked, but those against walls must not be secured too closely till such times as the soil has settled, or otherwise they will be "hung." Watering-in ought not to be necessary, there being plenty of moisture in the soil, but a mulching of strawy manure, or, better still, half rotten leaves, may well be given, this preventing any ill effects from severe frosts.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Forced.*—In the earliest house the trees are in flower. When fully expanded the night temperature may be maintained at 50° to 55°, the latter only when the nights are mild, 55° by day as a maximum in severe weather by artificial means when the sky is overcast, 65° by day from sun heat, and if the air be mild a few degrees (5°) more may be allowed. Syringing at this dull time must cease, but damping the floor and border may be practised in the morning and early afternoon on bright days. Lose no opportunity of ventilating freely when external conditions are favourable, and when the pollen is ripe choose the warmest and driest part of the day for aiding its distribution by shaking the trees or trellis, or taking a camel-hair brush or feather and gently applying the pollen to the stigma of each flower. If there be a deficiency of pollen of any variety, and there sometimes is of the large-flowered varieties, including the earlies, as Alexander, Hales' Early, Early York, Early Alfred, and Early Grosse Mignonne, it may be taken from those varieties that afford it abundantly, the small-flowered varieties having that characteristic, as Royal

George in Peaches and Elruge in Nectarines, Nectarine pollen being equally effective, if not more so, for the artificial impregnation of Peach blooms and *vice versa*. The outside border must be protected with litter or some other protective material, the inside border not being neglected for water.

Second Early Forced House.—The house containing trees to afford ripe fruit early in June should now be closed, damping the trees and house two or three times a day, turning the heat on by day for an hour or two in the morning, but not so as to exceed 50° by artificial means, allowing it to rise to 65° with sun heat and free ventilation. It will suffice if frost be excluded at night. The borders must be brought into a thoroughly moist state by repeated waterings and the outside border protected with litter, but not of a depth to heat violently. A gentle warmth of not more than 60° to 65° will do no harm, but more heat is harmful. All that is wanted is a covering to prevent chill from frost and snow.

Late Houses.—These should be put into order forthwith, and if any trees are swelling the buds more rapidly (which is not the case where the roof lights have been removed) than is desired, a covering of mats over the lights will prevent the temperature being raised by sun heat to a prejudicial degree, retarding the flowering considerably. From our latest house the roof lights were not removed until late in December (as the buds were less developed than usual, and with a dry air the wood ripens up even after the leaves have fallen through the evaporation), and they will not be replaced until the necessity of the buds showing colour indicated need of protection.

MELONS.—Sow seed of approved varieties at once for the first crop. They may either be sown singly in 3-inch pots, or a dozen or more may be placed round the edge of a 6-inch pot, to be afterwards potted off singly into 3-inch pots. In either case the pots should be about two-thirds filled with soil, covering the seed about half an inch deep, plunging the pots in a bottom heat of 80°. Good fibrous loam and leaf soil in equal proportions gently pressed down will form a porous compost for the young rootlets, it being important for this early sowing that the pots be efficiently drained. It is of the greatest importance that the seedlings be kept near to the glass. Blenheim Orange and Read's Scarlet-flesh may be mentioned as good in the scarlet-fleshed section, and Hero of Lockinge and Longleaf Perfection are first-rate as a green and white flesh respectively. Ripe fruit from a sowing made now may be expected at the close of April or early May. A temperature of 65° to 70° night, and 70° to 75° day is suitable.

CUCUMBERS.—Sow now for planting next month in pits or frames heated by fermenting materials, which should be in process of sweetening for making up the beds. If no convenience exists for raising the plants a bed of fermenting materials should be made up forthwith, the seed to be sown as soon as the bed affords a suitable temperature—70° to 75°. Plants from this sowing will be available for house planting to afford a late spring and early summer supply of fruit. We only grow two named varieties—viz., Telegraph and Cardiff Castle, but there are many other good varieties.

Plants in Houses.—Young plants just coming into bearing should not be overcropped, and assist them by removing staminate blossoms as they appear. Plants in bearing will require to be cut over about once a week, preferably twice, removing all weakly and exhausted growths, reserving as much of the young growths as can have space for expansion of its foliage, overcrowding tending more than anything to disaster, inasmuch as it must end in denuding the plants of a large extent of foliage. Stop the shoots at one or two joints beyond the fruit, but young plants should be allowed more freedom, avoiding overcrowding. The temperature by night should be 65° to 70°, 70° to 75° by day, with a rise of 10° or more from sun heat, admitting a little air at 80° if the external air be moderately warm and soft, but if cold and sharp it is better to allow the temperature to advance a little higher than admit too much cold air even when the sun is powerful. A little flowers of sulphur dusted on the walls and pipes, also foliage, is a good preventive of mildew and red spider, and quicklime rubbed well into any part of the stems affected with canker will subdue it. The floor and other available surfaces should be damped in the morning and early afternoon.

CHERRY HOUSE.—The house being closed last month as advised fire heat may now be applied so as to maintain a temperature by artificial means of not more than 40° at night, and 45° in the day, advancing 10° by sun heat, ventilating at 50°, and closing at that point. Ventilate very freely in mild weather, and avoid hasty treatment in the early stages of growth. See that trees in pots or tubs are not neglected for water, and sprinkle the trees and house occasionally in the morning and afternoon in bright weather.

Strawberries in Pots.—Do not push the plants too rapidly in severe weather, 50° to 55° will be sufficient at night for those that were started last month, and 60° to 65° by day, but it is always well to err on the safe side, therefore 5° less in the absence of sun, the weather being cold, is advisable. More plants should be introduced to shelves in Peach houses or vinerias started about this time. The pots should have the drainage rectified if necessary, the surface of the soil freed of moss or other material, and the pots washed. A surface dressing may be given of rich material, as a pinch between the finger and thumb of Amies', Clay's, Jensen's, Beeson's, Thomson's, &c., manure, stirring the surface lightly. If space some fine manure mixed with steamed bonemeal and soot, a quart each to a bushel of the manure, and well incorporated, will prove advantageous and a great encourager of surface roots. Suitable varieties for introducing now are Noble, La Grosse Sucrée, Vicomtesse Hericart de Thury, Sir Joseph Paxton, and President.

THE FLOWER GARDEN.

Tender Bedding Plants.—December and January are rather trying months, not a few summer bedding plants being lost about this time. November appeared to be very favourable to the well-being of autumn-struck Zonal Pelargoniums, these, thanks to clear weather and abundance of genial air, becoming strong, well rooted, and floriferous. Pans and pots of Henry Jacoby are quite gay with bloom, and others are also nearly as free flowering. All ought still to be kept on the dry side, this being especially necessary where the plants are stored in frames, pits, and but slightly heated houses, and dead and dying leaves closely removed, the aim being to keep them in a hardy semi-dormant state till the days become longer and warmer. Heliotropes that have flowered in pots ought now be kept somewhat dry at the roots, in order to well ripen the wood prior to cutting back slightly and starting in heat early in February. Such plants should give abundance of cuttings. Late-struck cuttings of these, as well as Ageratums, ought to be kept steadily growing; nor should Lobelias and Verbenas be dried off at the roots, but if placed on shelves in a cool house and given plenty of air in mild weather they will continue to grow slowly and strongly, abundance of good cuttings being obtainable when the propagating time arrives. Kept near the hot-water pipes the growth soon becomes wiry, dirty, and valueless. Calceolarias, Violas, Gazanias, and Echeveria secunda glauca, all of which are usually wintered in frames, ought to be well protected from severe frosts, the sides as well as the glass of the frames being enclosed by a bank of dry litter, or by mats and litter, yet they should receive abundance of light and air whenever this can safely be given. Unduly coddled they become yellow and weakly, and never grow into such fine plants as result from more intelligent treatment. The comparatively hardy Hollyhocks, Carnations, Pinks, Phloxes, Pentstemons, and Antirrhinums stored in cold frames and pits may well be protected from severe frosts. Not much water is needed, though they ought not to become very dry at the roots, and certainly must have plenty of air whenever the state of the outer atmosphere permits. The very tender Iresines, Coleuses, and Alternantheras are easily kept on shelves in a stove temperature, but if the attempt is made to winter them in a warm greenhouse, then must very little water be given them. Tuberous Begonias are easily injured by frosts, and any lifted stored in shallow boxes and placed in a cool shed must, whenever a severe frost is anticipated, be covered with mats or old sacks. Nor must the roots or tubers of Dahlias or Salvia patens be much exposed. A covering of dry soil prevents shrivelling, and mats, or even a good covering of paper, will ward off frosts. When these, Begonias, and Callas are stored under greenhouse stages drip is the greatest enemy. Unless something is done to ward off this a considerable portion of the stock may either start prematurely into growth or decay quickly.



HINTS TO BEGINNERS.

DURING the past season I have had many inquiries from beginners, and have visited most of their apiaries. The queries were varied, but in nine cases out of ten the owners were disappointed, the bees had died, and no honey was obtained. The year 1889 was an unpropitious one in which to begin bee-keeping. The cold spring following so untoward an autumn as that of 1888 many hives were rendered useless or almost so, and the short but early summer prevented any but extra strong hives gathering surplus, unless it was in some favoured and sheltered spot. The summer of 1888 was unfavourable for queens mating, and many of the hives purchased by beginners had aged or unfertilised queens, neither of which will give satisfaction or profit. The most important thing in a hive is a healthy, youthful, fertilised queen, and it is a most important thing for a beginner to make sure he is procuring young queens.

To insure this he ought to deal with trustworthy men only. If a swarm of the current year let it be an after one rather than a prime one, and let the bargain be that the queen is fertilised before the price is paid, or if more than one, that all be. This will, as a rule, be satisfactory the following year. If these swarms are early ones they may gather a surplus the same season, especially in districts where Heather abounds if it grows upon the right soil or rocks. If the beginner start with prime swarms, and the season is a fine one he may secure a considerable quantity of honey, but on no account should these aged queens be kept to form stocks for the following season. Steps should be taken to secure young queens for the number of stocks expected to be kept, but on no account should

imported queens be purchased to a greater number than one or two, and where there is one hive only have none at all until the beginner has gained some experience.

Although I do not agree in all "A Hallamshire Bee-keeper" says, still his advice on the question of raising queens is good, and the bee-keeper who follows it will be the gainer. Nearly forty years ago I discovered that bees, queens and drones, that were retarded in hatching, were more or less deformed externally, the wings being the first to suffer, the other members also being more or less defective, but never turned my thoughts to the probability that the internal organs were similarly affected. About the same date I discovered that when there was much pollen in the hive, such as is the case when the bees are at the Heather, they were liable to abdominal distension, and that they wintered better on pure sugar syrup, although the latter was better for breeding purposes. "A Hallamshire Bee-keeper" is therefore in error when he says, "It was Heddou who started the pollen theory." Long before Heddou was heard of in this country, and perhaps before he kept bees, I observed and recorded the fact that when bees had access to pollen, such as I have stated above, bees were liable to abdominal distension, but not to what I term dysentery, this latter being happily more rare than the various forms of abdominal distension, and is perhaps not what the Americans speak of. I quite agree with "A Hallamshire Bee-keeper" that a chill to queens while in their cells will injure them permanently; but how does it come that, under the natural system of swarming, the queen cells are in different stages just at the time when a prime swarm leaves, which reduces the temperature greatly in the hive? yet we have not experienced that the queens were impaired thereby. Doubtless the bees cluster round the royal cells, and so locate the heat necessary for the full development of the queens; so that although the general temperature of the hive is reduced, that of the non-conducting waxen cells of the queens is not. I have not had a case of dysentery amongst my bees for years, and yet I form my next year's stocks from nuclei by dividing a natural swarmed hive into as many as a dozen nuclei, about the ninth day after the prime swarm.

SELECTING ROYAL CELLS

It is impossible to tell by appearance of the cell whether the queen will be a good one or not. I have had queens raised in common worker cells, and have had them frequently built upon the face of the comb, that did not show the slightest projection, and these queens turned out profitable. When I have a choice of royal cells I prefer those that show a good deal of red between the sealing and cell proper, rejecting those of a white appearance, believing them to be defective from want of sufficient heat for their full development. While I am convinced that all bees suffer from too low a temperature while in the metamorphosing state, I cannot think that they will be seriously affected while the temperature they are exposed in is not under 60°, or even less. If "A Hallamshire Bee-keeper" can convince us to the contrary he will confer a favour on many besides—A LANARKSHIRE BEE-KEEPER.

(To be continued.)

BEES ON THE NON-SWARMING SYSTEM.

LIKE "Felix," I am inclined to think that the non-swarming system is the best for a large yield of honey, especially in some localities where the honey harvest is over by the 15th of July, as is the case in our district. As soon as we hear the reapers in the meadows we know the honey season is near its end. Under these conditions to keep our bees from swarming is the best, but in localities where white Clover abounds and the honey harvest is much longer, the swarming system may answer very well. In both systems one thing is absolutely essential—to have our hives strong enough to take advantage of the first flow of honey, and this may be done by having the stocks strong in the autumn by driven bees, by uniting after the honey harvest is past, and in spring if found weak by joining to nuclei in spring, and by giving plenty of good syrup to last through the winter well into spring. On the non-swarming system great care must be taken with strong stocks in spring, when many young bees are coming forth and honey is coming in freely, by giving plenty of room just as they want it, and by judiciously supplying supers. If honey is abundant, as soon as one crate of sections is

half completed put on one more, and so on possibly a fourth. The bee-keeper must use his judgment so as to have most of them completed. If run honey is wanted the doubling system answers well, and if the extractor is kept at work when the honey flow is on a good harvest may be had, but where time is precious as the bars are sealed they may be taken out and extracted at pleasure, empty ones taking their places, but it must be remembered in all cases that sealed honey is much the best, both in quality and as food or medicine, as the case may be. If the above hints are followed out, in most cases the swarming fever will be prevented. This is the course that I have pursued, and have rarely failed.

A bee-keeping friend of mine who follows the non-swarming plan, and has succeeded well, told me some time ago whenever he tried to prevent his bees swarming he had in no case failed. Some bee-keepers have tried the non-swarming system, and failed simply because they did not attend to the wants of the bees in time to prevent the desire to swarm. We must prevent the swarming impulse, and we shall mostly succeed; however, such has been the experience of—A HOWDENSHERE BEE-KEEPER.

BEE QUERIES.

PERHAPS you will kindly allow me, through your columns, to put a few queries before your correspondent, "Lanarkshire Bee-keeper," regarding his cheap hive, instructions about which appeared in the issue of January 10th, 1889. I should be obliged if he would inform me (a novice) whether 14 $\frac{1}{8}$ or 14 $\frac{3}{8}$ inches is the correct length of the top bars in connection with the above hive? How is the doorway to the hive constructed? What depth ought the division to be for the sections, and is the same depth suitable for small supers? Which kind of wood is recommended for making the hives?—J. D. L., Northumberland.

TRADE CATALOGUES RECEIVED.

G. Bunyard & Co., Maidstone.—*Catalogue of Vegetable and Flower Seeds.*

Armitage Bros., Nottingham.—*Catalogue of Vegetable and Flower Seeds.*

Harrison & Sons, Leicester.—*Seed Catalogue, 1890.*

John Peed & Sons, Roupell Park Nurseries, London.—*Catalogue of Seeds.*

William Barron & Sons, Elvaston.—*Catalogue of Forest Trees and Cover Plants.*

Barr & Son, 12, King Street, Covent Garden.—*Descriptive Catalogue of Seeds.*

E. P. Dixon & Sons, Hull.—*Catalogue of Garden and Farm Seeds.*

John Walker, 7 and 8, High Street, Thame, Oxon.—*Catalogue of Garden and Flower Seeds.*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (Agriculture).—Messrs. Ballière, Tindall & Cox, King William Street, Strand, London, is the address you require.

Cryptomeria japonica (T. L.).—Thanks for specimens, but we do not think they are uncommon, at least in the south of England.

Fungus in Mushroom Beds (L. A. W.).—We suspect the peculiar growths had their origin in the manure and not in the soil, but if all the manure was from the same source and similarly prepared the fact that one bed should be free and another infested is a little mysterious.

French Marigolds (X. Y. Z.).—There are specially good selections of both the tall and the dwarf strains, and neither one nor the other can, as such, be relied on to produce the best exhibition flowers. You had better try both, and you might do worse than procure small packets of seed from two or three sources.

Scale on Palm Leaves (J. T.).—The leaves are infested with a kind of scale, and your best plan would be to sponge the leaves with soft soap and warm water, or a small brush may be necessary to remove them. Those sent are in such a bad state that you are not likely to succeed in restoring them to health; remove the worst, and cleanse the others thoroughly.

Raising Lettuce Plants (E. T. H.).—Are you certain the fault of the failure is not in the seed? Old seed is very uncertain in germination, and the plants that do appear from it are often so weak as to make poor (if any) progress. The soil in which the seeds germinate and the plants grow well outdoors ought to answer equally well for raising plants under glass. However, if the soil you use is not suitable mix equal parts of loam and leaf mould; then if a similar failure occurs you may be certain the cause is either in the seed or management, not in the soil.

Glass for Plant Houses (J. C.).—The sample of glass sent is quite unsuitable for plant houses. It is far too thick, and would exclude much of the light so requisite for plants in this country. Such glass is not used in the establishment you name for the roofs of plant houses, and the green-tinted glass is also being discarded even for the Fern houses. To expect plants to succeed in a constant state of semi-obscurity is unreasonable; they will grow for a time, but become attenuated and weakly. Light is essential to the solidification of the growth made, and what shade is needed from strong sunlight can be readily afforded by means of roller blinds.

Names of Plants (Adolescens).—You are quite right. There is much confusion in the methods of rendering plant names in catalogues, and if you peruse them all it is not surprising your "head's in a perfect whirl." The general rule with regard to terminations is that the generic names ending in "us," "a" or "um" require similar terminations to the adjectives employed as specific names, but there are exceptions to this too numerous to mention here, and the first point to be determined is the gender of the substantive, which in names of plants is the title of the genus, then the adjective should agree with that. Sometimes, however, old generic names are employed as specific names in new genera, then the old name retains its original form, and does not necessarily agree with the genus in its determinations. Latin adjectives ending in "is" have only two terminations—namely, "is" for masculine and feminine and "e" for neuter. Some generic names ending in "us" are however regarded as feminine, as Quercus for instance, and their specific names are written accordingly—viz., Q. coccinea, Q. rubra, &c. The subject will probably be explained more fully in an article upon plant nomenclature promised for an early number of this Journal.

Solanums (J. R. S.).—If you have only a window for the plants you had better not cut them back till early in April, then by the time fresh growths push the weather may be warm enough for their being placed in a very sheltered position outdoors, protecting them from frosts which may occur in May, and cutting winds. More than half the old soil should be removed from the roots after fresh growth starts, repotting firmly in good turfy loam, a sixth part of crumbled manure, and a tenth of wood ashes. The pots may be plunged just over their rims in a sunny border for the summer, standing them on smaller pots in the ground to prevent worms passing to the roots. They must be watered as needed, which will not be half so frequently as if the pots were exposed. Clear soot water is good for Solanums when the pots are filled with roots. Some persons plant them out towards the end of May, lifting carefully, and potting firmly in September, watering well, sprinkling the foliage, and letting the plants stand in the shade for a time for keeping the leaves fresh and inciting quick root action. We have seen fine plants grown in that way, but all persons do not succeed alike. You might try both methods, and so gain experience that might be useful to you in after years.

Planting Anemones and Ranunculi (M. R.).—Choose the first fine day when the soil works cleanly for planting your Anemones. They are best planted in the autumn, but will do now. Draw drills across the bed 2 inches deep and 5 or 6 inches apart, and plant the tubers 5 inches apart in the rows. For choice varieties a thin layer of sand scattered under and around each tuber will be useful. As soon as the bed is planted cover the tubers with sandy loam from a basket or wheelbarrow. Take care that the tubers are placed the right side up, by observing the side that has the old small fibres on it. That side place next to the bottom of the drill. When all are planted and covered up the right depth (2 inches) then level the surface with a garden rake. The soil and preparation of the bed you describe will suit them very well. Ranunculi will all probably succeed if you mulch the bed in the spring to keep it moist, but they prefer stronger soil. The season for planting is in the early spring, as soon as the most severe frosts have passed and the ground has become tolerably dry. Some time about the end of February or the first week in March, rake the surface of the bed in the morning of the day previous to that fixed upon for planting. Some recommend steeping the roots for twelve hours in water before planting, but we think this not necessary, except the planting season has been from some cause or other put off till the middle of April; then it may be useful. Supposing, then, that the weather is propitious, and all things prepared, commence by drawing with a hoe a drill across the end of the bed, 1½ inch deep; if deeper the root will be weakened the succeeding year, by forming a kind of stem nearer the surface; and if shallower, the plants are more liable to be struck with drought. Plant the tubers, if large, 4 inches apart in

the row; if small, 3½ inches will be a sufficient distance, and cover them with fine sand. This will cause the tubers, when they are taken up in July, to come out of the ground quite clean for keeping.

Peach Buds Falling (H. J. P.).—We are glad you have sent specimens of the shoots. You say "according to your idea the wood is everything that could be desired." We may say that the examples before us are very far from being so good as they should be. We consider them inferior—ill-fed and immature. This may be the result of overcropping, and possibly overcrowding. Be that as it may, trees if not furnished with better and stouter wood, with less pith, are not in a condition to be forced, though it is possible that if not forced, or only very gently excited so that the root action and sap movement are synchronous, the buds might be retained, and fair crops of fruit follow. We should take a good deal of the old soil from the roots and add fresh calcareous loam, making it firm, but not positively hard, mulch, cut out such weak, ill-fortified shoots as you have sent, and encourage the production of stouter growths, which should be thinly disposed throughout the season for insuring early and complete maturation. We should commence the border renovation and pruning at once. No doubt the trees by their previously heavy bearing have earned a season's rest.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (R. N. R., *Youghal*).—The Pear is Winter Nelis. (P. H. W.).—Green Nonpareil. (J. M., *Isle of Man*).—The Apples are unknown to us. There is little doubt they are local and inferior to the best varieties in general cultivation.

COVENT GARDEN MARKET.—JANUARY 8TH.

BUSINESS has settled down to a quiet state again, and our Market being well supplied, prices are very easy. Good samples of Grapes are now coming shorter, but ordinary quantities are low priced.

FRUIT.

	s. d.	s. d.	s. d.	s. d.
Apples, ½ sieve	2	0	to	6
" Nova Scotia and				
" Canada, per barrel	12	0	20	0
Cherries, ½ sieve	0	0	0	0
Grapes, per lb.	2	0	4	0
Lemons, case	10	0	15	0
Oranges, per 100	4	0	to	9
Peaches, dozen	0	0	0	0
Plums, ½-sieve	0	0	0	0
Red Currants, per ½-sieve	0	0	0	0
Black	0	0	0	0
St. Michael Pines, esch	2	0	6	0

VEGETABLES.

	s. d.	s. d.	s. d.	s. d.
Artichokes, dozen	4	0	to	5
Asparagus, bundle	0	0	0	0
Beans, Kidney, per lb. ..	1	6	2	0
Beet, Red, dozen	1	0	2	0
Broccoli, bundle	0	0	0	0
Brussels Sprouts, ½ sieve	1	6	2	0
Cabbage, dozen	1	6	0	0
Carrots, per 100	0	0	0	0
Carrots, bunch	0	4	0	0
Cauliflowers, dozen	2	0	4	0
Celery, bundle	1	0	1	3
Coleworts, doz. bunches	2	0	4	0
Cucumbers, each	0	3	0	6
Endive, dozen	1	0	0	0
Herbs, bunch	0	2	0	0
Leeks, bunch	0	2	to	0
Lettuce, dozen	0	9	1	3
Mushrooms, punnet	1	6	2	0
Mustard & Cress, punnet	0	2	0	0
Onions, bustel	3	0	4	0
Parsley, dozen bunches	2	0	3	0
Parsnips, dozen	1	0	0	0
Potatoes, per cwt.	3	0	4	0
Rhubarb, bundle	0	2	0	0
Salsify, bundle	1	0	1	0
Scorzoner, bundle	1	6	0	0
Shallots, per lb.	0	3	0	0
Spinach, bushel	1	0	2	0
Tomatoes, per lb.	0	6	1	0
Turnips, bunch	0	4	0	0

CUT FLOWERS:

	s. d.	s. d.	s. d.	s. d.
Arum Lilies, 12 blooms ..	4	0	to	9
Asters, per bunch, French	0	0	0	0
Azalea, dozen sprays ..	0	9	1	6
Bonvardias, bunch	0	6	1	0
Osmundas, dozen blooms	1	6	4	0
Carnations, 12 blooms ..	1	0	2	0
Christmas Roses, 12 blms.	1	0	2	0
Chrysanthemums, dozen	0	6	3	0
Chrysanthemums, dozen	6	0	12	0
Epioblythum, doz. blooms	0	6	0	9
Enceladus, dozen	4	0	6	0
Gardenias, 12 blooms ..	4	0	8	0
Glaudiolus (various) dozen	0	0	0	0
Hyacinths (Roman) dozen	0	6	1	6
Lepageria, 12 blooms ..	2	0	4	0
Lilium, various, 12 blms	2	0	4	0
Lilium longitorum, 12	9	0	12	0
blooms				
Lily of the Valley, dozen	1	6	3	0
sprays				
Marguerites, 12 bunches	2	0	6	0
Maidenhair Fern, doz.	4	0	to	9
bunches				
Mignonette, 12 bunches	2	0	4	0
" Fr., large bunch	1	6	2	0
Narcissus (Paper-white),				
dozen sprays	1	0	1	6
" French, 12 bunches	4	0	8	0
Pelargoniums, 12 trusses	1	0	1	6
" scarlet, 12 bunches	6	0	12	0
Primula (double) 12 sprays	1	0	1	6
" (single) 12 sprays	0	9	1	0
Roses (indoor), dozen ..	1	6	3	0
" Bed	0	0	0	0
" 12 blooms	1	6	2	0
" Tea, white, dozen ..	1	0	3	0
" Yellow	2	0	4	0
" French, per bunch ..	2	0	4	6
Spiraea, dozen bunches ..	9	0	12	0
Stephanotis, doz. sprays	0	0	0	0
Sweet Peas, doz. bunches	0	0	0	0
Tuberose, 12 blooms ..	1	6	2	0
Violets, dozen bunches ..	1	0	2	0
" French, per bunch	2	0	3	0
" Parme, per bunch	4	0	6	6
White Lilac, Fr., per bunch	6	0	8	0

PLANTS IN POTS.

	s. d.	s. d.	s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0	to	12
Arum Lilies, per dozen ..	12	0	18	0
Arborvitae (golden) dozen	6	0	24	0
Azalea various, per doz.	30	0	42	0
Begonias, various, per doz	4	0	12	0
Balsams, per dozen	0	0	0	0
Caladiums, per doz.	0	0	0	0
Christmas Rose	0	0	0	0
Chrysanthemums, dozen	6	0	15	0
Dracænanthems, doz.	24	0	42	0
Dracæna viridia, doz.	12	0	24	0
Epioblythum, per doz.	12	0	24	0
Erica, various, dozen	12	0	18	0
Enonymus, var., dozen ..	6	0	18	0
Evergreens, in var., dozen	6	0	24	0
Ferns, in variety, dozen	4	0	18	0
Ficus elastica, each	1	6	to	7
Foliag. plants, var., each	2	0	10	0
Hyacinths, 12 pots	9	0	12	0
" (Roman) 12 pots	9	0	15	0
Lily of the Valley, 12 pots	24	0	42	0
Marguerite Daisy, dozen	6	0	12	0
Mignonette, per dozen ..	0	0	0	0
Musk, per dozen	0	0	0	0
Myrtles, dozen	6	0	12	0
Palms, in var., each	2	6	21	0
Primula (single) per doz.	4	0	6	0
Rhodanthe, per dozen ..	0	0	0	0
Saxatraga pyramidalis,				
per dozen	0	0	0	0
Solanums, per dozen	6	0	12	0
Tulips, 12 pots	8	0	10	0



AGRICULTURAL VITALITY.

THERE is no such thing as standing still in this world; while life and strength hold we must go forward to meet the good and evil of life, always resolute to grapple with our difficulties, to rise superior to and overcome them. That some such feeling animates agriculturists as individuals and as a class we have no doubt, for we may certainly speak of agriculture as progressive and not stagnant. On every hand there are signs of intelligent progress, which betoken vitality, and which certainly point to a brighter decade than that which has just closed with the last of the eighties.

No doubt there are still many grave faults of practice and custom to correct. One of these is the show-yard gloss of cattle, sheep, and pigs. It is claimed that "mountains of fat" are no longer visible at agricultural shows, and we grant that the system is modified, but it is still wastefully in error. Take, for example, the Sandringham prize pen of South Down sheep at the Smithfield Christmas Cattle Show; were they not seriously fattened to waste? So, too, were several other pens. Christmas beasts always abound in butcher's waste, and the tendency to favour small breeds is fast growing. Go to any cattle mart now, and it will be found that small well finished animals invariably command more competition and a better sale than large coarse beasts. Various reasons have been given for this, but we think it is a clear case of a general preference for meat of high quality, hence the popularity of Devons and polled Scots. Kerries are also gradually making way for beef as well as milk, and the *Live Stock Journal* tells recently of a very remarkable carcase of beef being one of the Kerry heifers from Elsenham Hall, the depth and thickness of which in proportion to its length being phenomenal.

Early maturity in breeding has especial attention, and is bound to affect all breeds sooner or later. Keen competition is very apt to induce undue preference on the part of breeders for the development of beef rather than dairy points in a breed. Take the Herefords for example. In the improvement of these massive animals beef alone has been kept in view, and milk has been quite ignored. From a strictly economical point of view this is wrong, but the temptation to develop beef only in the "White Faces" was irresistible. We went through a large herd of them in Northamptonshire last autumn; they were out on rich pasture, where they had been also regularly trough fed. Not one of them would be tied up, for they were just as ripe as Blackberries, and were being sent off to London at the rate of ten a week. Nobody could venture to generalise with such grand beasts before him, for there was evidently "money" in them, and a lot of it too. Can we wonder that the judges of Red Polls at Windsor should remind breeders of the importance of retaining the high milking qualities of this breed, in which the tendency to produce beef is so apparent also?

This is a reminder that dairy farming is progressive also. Miss Amy Barron's recent lecture on the science of butter making in her native village of Borrowash, near Derby, abounds with useful hints and sound practical information, and is certainly worthy to rank with the exhaustive lecture on the same subject given by Dr. Voelcker a month or two ago. Butter factories are increasing, much to the benefit of local farmers, the latest announced being for the especial benefit of Sir Henry B. Meux's tenants, and is calculated to take the milk of 500 cows. The initial capital required for the building and management of such a factory is £4000. The prices guaranteed for milk are 5½d. per gallon for six

months, 6d. for two months, 7½d. for two months, and 8½d. for two months. These prices appear low in comparison with that paid to retailers of milk, but they are certain, and there is no risk of loss, no carting to railway stations, no delivery at long distances.

By all means let us push on the dairy farming, and everything else that tends to make us less dependant on corn growing. The Australian Wheat harvest is almost ended, and the calculated surplus of Wheat is a million quarters, which will not be held for a market, but will be sent to Europe and sold at any price. There may be a falling off in Wheat growing in the United States of America, but it must never be forgotten that Wheat is imported in considerable quantities into this country from nearly twenty other countries besides the United States. It is always coming, nothing can keep it back, and though farmers may wax eloquent upon the wrong done them by the people being fed below the cost of production, be very sure the people will not suffer their rulers to tax them to save the farmers.

WORK ON THE HOME FARM.

Poultry repay well now for especial attention. They suffer from exposure to cold, and are wretched in the extreme upon a sodden muddy run. We have two fowl houses, one entirely enclosed by weather-boarded sides, with roosts and nests; the other boarded at the ends and back, but the front facing the south has fine wire netting, with about 2 feet of the bottom only boarded. Here most of the fowls are fed, and they are induced to remain here on wet or snowy days by a fresh supply of fine dry ashes daily. There are plenty of low perches upon which some pass the greater part of the day, while others revel in the dust; a Cabbage and a Mangold or two are placed in this feeding house frequently, and are much enjoyed. Eggs come freely, and are the best evidence of successful management.

Akin to this subject is the case of cows now. A warm, clean, cosy, yet well ventilated cow house is the best promoter of health and a full steady yield of milk. Roof ventilators such as we described a few weeks ago answer best, and there is no draught. When cows are kept in altogether they should have roomy quarters. We have seen them coupled for winter in stalls that were much too narrow, the poor animals not only being very uncomfortable, but getting in a most filthy condition. Altogether better is it to let cows have a little exercise on all fine days than to keep them constantly tied up. In the cow houses of the metropolis the cows are mere machines, kept only so long as they yield milk freely, and then at once passed on to the butcher. Such treatment is no guide for the home farmer; he requires healthy animals for breeding as well as milking, and he cannot afford to use them up in a season or two. All the town milkman looks for in a cow is a big frame and a big bag, quality of milk or special breed is nothing to him. Mixed food and an occasional change should be given to all store cattle, and they should always have access to rock salt. Without a well-managed dietary they often fall off in condition now, and become very mangy. One can tell at a glance if beasts are well managed, but that is a matter that should not rest with the stockman, nor should it be possible for him to waste food; weight, and measure, and close supervision are the best checks.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.				Rain.		
	Barom. terrac. and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass	
1889-90. Dec. and Jan.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday	29	30.513	25.5	24.4	Calm.	38.1	33.1	21.8	35.0	17.1	—
Monday	30	30.412	33.1	32.7	N.	37.1	35.1	23.2	35.2	22.2	0.02
Tuesday	31	30.363	30.4	31.3	E.	36.3	37.5	28.8	40.2	27.2	—
Wednesday ..	1	30.413	28.2	28.2	S.E.	36.2	35.0	26.4	33.0	19.6	—
Thursday	2	30.206	32.7	32.5	N.E.	35.9	34.2	26.1	37.1	18.3	—
Friday	3	29.752	31.7	31.5	N.E.	35.6	34.8	31.9	44.4	31.1	0.111
Saturday	4	29.745	43.2	42.9	S.	35.6	47.5	31.9	55.1	32.2	0.173
		30.169	32.1	31.9		36.5	37.7	27.4	32.9	21.0	0.31

REMARKS.

- 29th.—Dense fog till about 3 P.M., then fairly clear.
 30th.—Cold and slightly foggy; gas necessary from noon owing to high fog or smoke cloud.
 31st.—Fog rendering gas necessary till noon, then cleared, and sunshine from 1 P.M.
 1st.—Fog; gas necessary till 12, then slight till evening, when it became dense again.
 2nd.—Fair, but slightly foggy in the morning; cloudy afternoon.
 3rd.—Fog till 11; cloudy and damp till 4.30, then rain.
 4th.—Dull and damp early; fair day, with a little sunshine at noon.
 Another very dull and rather cold week; temperature not much above freezing point and no warm sunshine except on 4th.—G. J. SYMONS.



CONFERENCES.

NEVER before in the history of British horticulture have so many meetings been held for the discussion of special subjects as within the past four or five years, and the present has not been inaptly described as "an age of conferences," for the remarks above made are almost equally true respecting other trades and subjects of general importance. To solve a difficulty, to elucidate an obscure subject, or to afford a ready means of interchanging ideas upon an interesting and popular topic the form of meeting termed a conference is unequalled. As applied to horticulture our American cousins have taken the lead in arranging such meetings, and their success has amply justified the extension of what may be termed a system of mutual instruction. There are times when men become tired of reading, and seek for a more social form of gaining knowledge and spending their time usefully. Lectures have from the earliest time constituted a pleasing mode of conveying instruction, but there is something didactic or scholastic about this which renders it distasteful to some, and it is essentially unsatisfactory unless the implied superiority of the teacher is well maintained. For the unskilled in any profession or occupation it is most desirable, but experienced men often differ in their opinions and practice, and while seeking information themselves can often enlighten others upon difficult matters. In a conference the speakers and auditors are placed more upon an equality than in any other system; there is freedom for the expression of all opinions for or against certain methods or ideas—in fact it is really, or should be, a public conversation on a wide basis, organised with a view to the elaboration of some subject of special or general importance. The more this social feeling can be encouraged the greater freedom will there be in the expression of ideas, and this is what is required to render such gatherings serviceable in the highest degree. The more widely correct information upon any useful subject can be diffused the better it is for all concerned, and happily the old narrow views respecting the restriction of knowledge with regard to successes in horticulture are becoming obsolete. We find many of the most successful practitioners readily communicating their opinions and the results of a life's study to thousands through the medium of the press, and few indeed who in conversation with a brother gardener will not with pleasure relate the details of his best and most special work. There are many, however, quiet, observant, earnest men who have perfected themselves in their calling by close application, but who rarely or never attempt to shine in print, yet who have their minds filled with useful practical knowledge they willingly communicate when the opportunity offers. For such as these the social conferences advocated are specially adapted. The more ideas that can be brought under examination the better, and the benefit will fall mostly to those who are quietest at catching "notions," and the most skilful in executing them.

The reasons advanced appear to me conclusive that conferences on horticultural matters when properly conducted must prove advantageous in a more than ordinary degree. They interfere with no "vested interests," no one class of horticulturists is alone benefited, but all who desire to do so can profit by an interchange of ideas upon a favourite subject. Much, therefore, can be urged in support of such gatherings. The more they are increased in numbers the greater the advantage to the gardening community. There are no prizes to tempt the cupidity of individuals, or induce the envy and

other evil feelings which occasionally arise in the breasts of unsuccessful competitors, and it is impossible to imagine how the most pertinacious and exacting fault-finder can reasonably object to a combination of individuals for their common good when such a combination is also for the benefit of horticulture generally.

The best methods of arranging meetings of the character referred to may be worth a little consideration. As I have been concerned in the organisation of at least six London conferences on horticultural subjects, and as these have been considered satisfactory gatherings, and have collectively attracted something like a thousand persons, I may claim to have gained a little experience in the work. The ideas thus secured are here set forth for the assistance of those who may wish to arrange meetings of a similar character. In the first place it is necessary to avoid long papers, and this is a difficulty which is not easily dealt with. When anyone is invited to read a paper the tendency is to produce an exhaustive treatise, highly creditable to the writer and reader, valuable if printed, but scarcely adapted for the purpose of a conference. When the papers are long, however good they may be, the interest flags, and where there are so many points to consider few are remembered for remark afterwards, and, as a rule, long papers induce but little discussion. If it is desired to have one or two papers upon the subject to be examined they must be short, pithy, suggestive, reviewing disputed points, and calculated to encourage others to express their views either in opposition or agreement. It is also preferable where possible that such papers should be printed and circulated amongst those who intend to take part in the discussion before the meeting commences. When a paper is read some of the points are sure to be missed, whereas if it could be glanced through and passages marked they could be readily taken up subsequently. This was well shown at Hull recently, where printed slips of the papers were distributed in the meeting, and one of the most animated and prolonged discussions I have ever witnessed followed.

It is possible, however, to avoid papers altogether, and the result of an experiment tried at the National Chrysanthemum Society's Conference last week was so satisfactory that the plan might well be extended. Some of the American and other societies have long adopted the system of submitting questions upon particular subjects to the meeting, entrusting different individuals with the task of introducing each to the meeting, or they are submitted through the Chairman. The questions are published with the programmes of the meeting, and distributed amongst the members, so that all have an opportunity of thinking the subject out before it comes on for consideration. If the questions are carefully framed, so as to cover a good deal of debateable ground, there is no difficulty in obtaining discussion, and this is what is required—more talking and less reading—not one man's ideas, but those of as many persons as can be induced to express them.

One important matter in the regulation of the business is to secure a firm and impartial Chairman, who is well versed in the subject under consideration, and much of the success will depend upon the manner in which this indispensable official performs his duties. At the same time all those who engage in meetings of this kind should be prepared to accord generous attention to opposing views expressed in temperate language. Disputation and discussion are very different, and some persons rarely give utterance to a diversity of opinion without doing so in offensive terms or tone. It requires some judgment to determine where free, smart, but fair criticism ends and objectionable personality begins, and the fact is very few are qualified as racy critics, for the majority who assume that character lose sight of the special objects of these meetings, and seek only to vaunt their own opinion at the expense of others. One such individual, if he be not duly kept in bounds by the Chairman, is sufficient to defeat the purpose of the best planned gathering, or at least to deprive those present of all pleasure in the discussion, which is effectually checked when dominated by a dictatorial person. It is sometimes advisable to limit the time at

the disposal of each speaker to ten or fifteen minutes, but it is seldom that these periods are exceeded in an ordinary discussion, and it is perhaps better to leave the matter in the hands of the Chairman, who will be able to judge when the speaker is keeping to the subject under consideration, and contributing useful information.

Some minor matters need a little attention. For example, the room or building in which the Conference is held should not be too large; a moderate sized room well filled is far better than a spacious hall with a scattering of auditors. The necessary means of ventilation must, however, be provided, as a hot close atmosphere is not likely to have a very inspiring effect upon those present. The time and place chosen for the meeting must of course depend upon a variety of circumstances, but it may be stated in a general way that a conference upon any special horticultural subject should be arranged whenever possible in connection with an exhibition which would serve in some degree as an illustration of the topics dealt with. More interest would also be added to shows of all kinds, and their practical usefulness increased by such gatherings, whether for conferences or lectures. I remember well some years since when the National Rose Society held a provincial Show in the Sheffield Botanic Gardens, what a large company assembled in the afternoon to hear a lecture by Dean (then Canon) Hole, and how much more interest was imparted than the mere exhibition would have afforded. A lecture from a well known and recognised authority on a subject, or a conference of amateur and professional gardeners, might be arranged for nearly every one of the larger shows in the kingdom with little difficulty, and at an insignificant expense. With a good band nothing further should be needed to render really horticultural shows successful; country fêtes and galas, in which horticulture only plays a secondary part, are not included in this category.

The Royal Horticultural Society has done valuable work in instituting conferences and similar meetings, their record of the past seven or eight years being a varied one. In October, 1883, the National Apple Congress was held at Chiswick, but no papers were read, and there was no arrangement for public discussion. At the Orchid Conference, however, in May, 1885, several excellent papers were read, followed by a most interesting discussion. The National Pear Conference was held in October, 1885, but again no papers were read, though at the Primula Conference in April, 1886, several were submitted. The Orchid Nomenclature Conference at Liverpool, in June, 1886, was opened with a few remarks, and one paper was read; the discussion also was fairly good on this occasion. An Apple and Pear Conference took place at Chiswick in October, 1888, when a series of exhaustive papers was contributed, and the discussion also was spirited. The year 1889 was an exceptionally busy one in regard to Conferences, for the Society named arranged no less than three, one devoted to Roses in June, to vegetables in October (a remarkably successful meeting), and to Chrysanthemums in November, all being conducted on the same lines—namely, providing papers on special subjects, followed by discussion. For the present year Conferences on Daffodils, Carnations, and Ferns are also announced, so that the Council has evidently recognised the importance of this form of meeting, and may fairly claim to have done good work in their promotion.

The Fruit Conferences at the Crystal Palace in September and October, 1888, which led to the formation of the British Fruit Growers' Association, also attracted much attention, as did the meeting held in the same place in October, 1889, and a series of similar Conferences now being arranged for the present year, may be expected to yield similar results. The National Chrysanthemum Society has held several Conferences, that last week being in some respects the most satisfactory of all. Besides these various meetings of a similar character have been arranged at provincial towns, as at Sheffield, Leicester, and Hull, but these have been chiefly devoted to Chrysanthemums, and there is plenty of room for others.

Another and important form of mutual improvement which in recent years has been much extended consists in the institution of gardeners' societies in provincial towns, the principal object being to hold meetings for discussions on various subjects connected with practical gardening. The Paxton Societies in the north of England, notably at Leeds and Wakefield, have done good work in this way. There is also a Society in Nottingham which holds very interesting meetings. At Birmingham and Reading frequent gatherings occur during the winter at which papers are read. The Chiswick Gardeners' Mutual Improvement Association holds its meetings weekly from October to March in the Council Chamber of the Chiswick gardens, and an admirably diversified programme is provided every year. The rules of this Association are also brief and suitable for societies of a similar kind. After providing for the election of officers, &c., three or four rules referring to the regulation of business are so admirably adapted for their purpose that they are here reproduced for the guidance of any concerned in the formation of improvement associations. They are as follows:—
“That members wishing to read a paper shall submit the title of the same to the Secretary at least a month previous to the night on which it is to be read, so that it may be announced and members have an opportunity of preparing for it. That the time allowed to the reader or opening speaker do not exceed half an hour. Any extension of time may, however, be granted at the discretion of those present. That succeeding members be allowed ten minutes to speak, and that no member be allowed to speak twice until the others present have had an opportunity of speaking. That no discussion be allowed between two or more members, but that each shall address the chair and the meeting generally.”

These combinations for mutual advantage merit every encouragement. They promote an advance in knowledge and increase a social friendliness amongst those engaged in the same calling. We are occasionally told that this is not an age for sentiment, but if it is intended by that expression that the rush and rivalry of securing a living are to exclude all kindly feelings and generous recognition of other competitors, it can only be regarded as a pernicious doctrine emanating from grossly selfish minds. If civilisation and society offer any benefit to mankind it must consist mainly in mutual assistance, and this applies as much to societies of all kinds as to families and the state generally.—
LEWIS CASTLE.

BRITISH APPLE CULTURE.

KNOWING, as I do, the interest the *Journal of Horticulture* has taken in the cultivation of such fruits as are eligible for the supply of our home market, at the head of which I feel disposed to class Apples, I ask for space in your valuable columns for the following remarks.

I purchase what Apples we require for family use, and if I could get them conveniently I would only buy British grown ones. I get what I do buy from Jas. Lindsay & Son, the great fruit importers of Market Street, Edinburgh, and when I asked them why they did not deal in English and Scotch Apples, their reply was, “If the English and Scotch growers would pack them as the foreigners do we would do so. As they do pack them we can put a thousand barrels of foreign Apples through our hands quicker than we could put a tenth of the quantity of British.” Surely our home growers are not so destitute of resource as not to be able to meet a case like this. Machinery could make barrels as cheaply in Britain as in America or Germany, and they might copy the way the foreigner packs the Apples. To my taste there are no foreign Apples equal to good English ones for cooking. They are dry and lack the fine brisk acid taste of, say, Lord Suffield, Ecklinville Seedling, Hawthoruden, Cellini, and others that might be named, and keeping off the true “Newton Pippin” from America, there are no foreign Apples for table use equal to Ribston Pippin and Cox's Orange Pippin. Many of the so-called dessert Apples from the Continent are dry, as in the case of Russets, and full of worm holes.

If the growers of Apples in such counties as Kent, Hereford, Gloucester, and some of the other best Apple-growing counties, would place their fruit packed as the Americans do theirs on rail, I could guarantee them a large sale in Scotland alone. Surely if the Americans, with their more expensive labour, can make

barrels, pack their fruit as they do, pay a commission on the other side of the Atlantic, freight, and another commission on this side, not to speak of two profits, if not three, ere they reach the consumer, the home grower could hold his own, seeing the foreigner is so handicapped.

Pass through any town in Britain, I might almost say village, and you will see in all the fruiterer's shops, as well as in those of grocers, barrels of Apples, and not one of them British. Surely this is not as it ought to be. We send hundreds of thousands of pounds of British money into nations that meet all the products of our industry with the most hostile tariffs. Will patriotism not arouse some grower to take the lead, and set an example that would induce others to follow?—W. M. THOMSON, *Clovenfords*.

BEING much interested in Mr. J. Wright's comments, perhaps he will not object to my endorsing his trite remarks, at the same time adding a few notes. I agree that it is not the foreigner's fault that fruit of first class quality is not produced at home, and there can be no question about the failure of the Britisher in this respect. Living in this great Apple growing county of Herefordshire, I fully endorse the remark on page 23, "That weight for weight, the practically worthless and unsaleable home-grown Apples in good Apple years exceed the importations of handsome-looking, well sorted fruits that come from distant shores." It will always be the case, unless a radical change takes place, that the growers of high-class fruit will at any time be able to secure good prices, because those growers are comparatively few in number who grow only the best and carefully grade their goods before consigning to market. Packing, again, is done in the most slovenly manner, and in a way that would ruin the choicest fruit. Fruit trees are neglected in such a manner that good crops of fine fruit cannot be reasonably expected. If orchards were annually manured in the same way as other land from which crops are naturally looked for there would not be so many worn-out orchards in which the trees are comparatively young.

Many run away with the idea that fruit growing is an easy matter and certain to be remunerative. So it is remunerative, but only in the hands of those possessing knowledge, capital, and untiring perseverance, and then failures will occur which no human power can avert. I have not the least hesitation in stating that many will regret embarking on fruit growing. I know of more than one instance where a great amount of money has been expended by gentlemen, in such a manner that it is certain to never return, through the employment of incompetent men. If a capitalist goes in for fruit growing a competent man is a necessity to get successful results, which, taking one year with another, is certain when properly managed. Probably the greatest drawback in fruit culture is the "caterpillar plague." Last year the damage done was immense, and this year I fully expect an even worse attack unless something unforeseen occurs. Fruit trees, forest trees, and hedgerows are thickly studded with the eggs of the winter moth; and though we had a splendid autumn for fruit trees, ripening their wood, and perfecting the fruit buds, the outlook is decidedly gloomy. The person who can invent a certain remedy for this pest deserves a country's gratitude and a well filled pocket.

A good deal has been written about the Fruiterers' Company's efforts to promote improved methods of fruit culture, and I for one wish them every success in their plans whatever form they may take. Every method of improving the present low standard of home-grown hardy fruit deserves a welcome, because no Apples grown abroad can equal well grown samples produced in this country.—S. T. WRIGHT, *Glewston Court Gardens*.

SOME NOVELTIES.

PERHAPS a few lines regarding several varieties of Melons and vegetables grown in the past year may be of some use to those now thinking of preparing their seed orders. I will commence with Melons as the best of fruits raised from seed, and I consider a high class Melon when at its best as second to no fruit. Messrs. Henderson of New York sent me for trial their Delmonico Musk Melon, a large fruit most beautifully netted with pinky flesh, the skin being when ripe of a yellowish green tint (in fact the illustration of Triumph Melon in Messrs. Sutton's catalogue is an exact representation of Delmonico Melon, with the important exception that there is no green in the flesh as in Triumph, which is described and figured as a green flesh). The appearance of a well grown fruit is grand, and when cut the palate confirms the judgment of the eye. It is a very weakly grower at first, and it grew so spindly that I threw all my plants but two away, and those I planted in a corner of the house where nothing could grow well to live or die, not caring much which. However, they grew apace, although the growth is so thin one would hardly think it would

support large fruits, which it does. All the fruits were large and handsome, and I do not know a Melon I like better.

Albert Victor was sent out as a novelty, but it was no novelty to me, for a friend of mine grows a Melon exactly similar to it. It is of robust constitution, and the fruits are well netted and bright yellow when ripe. It keeps well—in fact is the best keeper I know—and has white flesh of good but not of the best quality. I can recommend it as a sort easily grown. Blenheim Orange and Hero of Lockinge are not novelties now, but are the most reliable of all Melons, the latter being far and away the best of the two. A seedling of mine, which Mr. Gilbert has dubbed Her Ladyship's Favourite, is to my mind the best Melon grown for quality and appearance, but of course every man likes his own chickens best. I have heard of it being delicate, but Mr. Fisher of Boreham House, who grows it in the Melon house, and more largely in frames, finds it to be of robust growth.

Of Peas I will only mention Sharpe's Victory and Triumph, the former about 2½ feet high, bearing long pods of very deep colour with peas of good colour and quality; a useful Pea but not equal to some others. Triumph is a good all-round Pea, and I believe one of the best of the second earlies with large pods tightly filled with large peas, and the quality is good; I can strongly recommend this Pea to all. I must not forget William Hurst, which is so useful for early work, and I observed Mr. Iggulden found it equally useful for late sowing. It is far in advance of American Wonder. Some years ago I tried Dr. Hogg, and found it to be quite the best second early Pea for quality, the pods so packed with peas that there was a difficulty in opening them. I seldom see this Pea mentioned, the Giants being more fashionable, but I mean to return to it this year, which indeed I should have done before had I not been overburdened with such a number of different varieties in hand.

In Longpod Beans the greatest advance I have seen is Bunyard's Exhibition Longpod. I have found this to have very long pods of deep green colour, filled with beans from end to end tightly packed. I have always found these monster Beans very apt to have gaps in them and the pods more woolly substance than Beans; but here the proportion of pod is not great, and there are no gaps in the beans. It is the best Longpod I have grown for number of beans in pod and as a prolific bearer.

Of Dwarf and Runner Beans Ne Plus Ultra Dwarf is, I consider, the best of all French Beans—early, great cropper, fine Beans and high quality. Ne Plus Ultra Runner is the longest Bean grown, and is a fair cropper and the quality is good. It is very useful for exhibition purposes, but for general usefulness commend me to common Scarlet Runner.

Late Broccoli are very useful, and the latest of all is Gilbert's Victoria, which I found excellent in every way, and I had plenty to cut when all others were done with. Snowball Cauliflower is dwarf, very early indeed, and snow white. No better can be had for early work.

President Carnot Brussels Sprout is tall, bearing profusely firm and large sprouts of good quality, but I cannot say I consider it better than Sutton's Exhibition well grown.

Guerande Carrot is to be highly recommended. It is very similar to Sutton's Early Gem. I grew many nearly as thick as they were long. They are good for exhibition and of splendid quality, and a great weight can be grown in a given space. Sutton's Intermediate was an excellent companion to the above, the colour and shape being good.

Daniels' Masterpiece Cucumber I found a very shy bearer, but the fruits were magnificent, and I never knew a Cucumber carry such a heavy bloom. No better Cucumber could be grown for the exhibition table.

I have already given a description some time back of the varieties of Tomatoes I grew. It is sufficient to say Laxton's Open Air is best for outdoors; Volunteer, Golden Sunrise, Prelude (small), and Perfection for under glass.

Sutton's White Heart Cos Lettuce cannot easily be beaten for quality, long standing, and appearance, and amongst the Cabbage Lettuces I was extremely pleased with the fringed Early Ohio.

Laxton's No. 1 to succeed the Ashleaf, with Bouncer to follow on, together with Sutton's Satisfaction, will make a trio of Potatoes which I think can hardly be beaten.

I have a guilty feeling that the Editor's patience will be exhausted before he gets so far as this, so I will try to save this from the waste paper by concluding.—H. S. EASTY.

EUPHORBIA JACQUINIÆFLORA.

Few persons will be prepared to dispute the claims to beauty and usefulness which well-grown specimens of this fine old plant possess when their graceful drooping shoots are wreathed with

their neat yet brilliantly coloured scarlet flowers, shown off to perfection with a feathered edging of deep green leaves. At this time of the year, when sprays are in great demand, a single flowering shoot makes by itself a finished addition to a lady's dinner or ball dress, or when it is desirable to use a few white flowers as well. Lilies of the Valley or Roman Hyacinths irregularly fringed around the scarlet Euphorbia, with a few Fern fronds added, make a very effective and uncommon spray. For arranging in mixed groups of plants, when grown in 4 or 5-inch pots, carrying from one to three flowering shoots, they add a pleasing feature to such arrangements that cannot be obtained with any others flowering at the present time of the year.

Although Euphorbias are such deservedly popular favourites, they are neither grown so largely or so well as they should be; it is not unusual to find plants in anything but a thriving state by the time they approach the flowering stage. Having had plants under my charge at different places during the last dozen years, the opinion I have formed concerning the causes which often bring them into an unhealthy state may be worth recording. Here they are in an abbreviated form—too much root room, too much water, and too much peat. Those plants that are rooted during the spring months we flower in 5 and 6-inch pots, and by the time they are in flower the pots are crammed with roots, yet we have no difficulty in retaining their deep green leaves down to the rim of the pots till they have done flowering.

When the plants have made about an inch of young growth they are shaken out of the soil, the roots are trimmed back, and they are placed into the same sized pots; subsequently the strongest of them are shifted into 7-inch pots, and the remainder into 6-inch ones, and whenever potting is performed we always give small shifts. During the growing season when well established they should receive a good supply of water, but in autumn and winter we allow them to become drier at the roots than is good for most plants. Once get them into a sodden condition and they are certain to lose a great number of their leaves, and in some cases, to use a familiar term, "go off" at the collar, and I have noticed that the latter calamity occurs the most frequently to plants that are grown in a compost in which peat predominates, and when an unnecessary amount of root room is given. This not unfrequently happens to plants out covering back walls in stoves or intermediate houses where they can receive a fair amount of light, yet great care should be exercised in watering, and the roots be restricted both as to depth and width and border. We often find that the simplest composts are the best, and after trying various mixtures for Euphorbias have found them succeed best in pure turfy loam, with a little sharp sand and charcoal added to bring the soil into that mechanical condition under which roots of all plants are the most rapidly produced. I would not, however, advise the use of loam alone in all cases, for the simple reason that loam differs so much in quality and texture, and it is not everyone who can obtain it in such fine quality as we are able to procure it here, being more inclined to be light than heavy, having a fair amount of fibre, and of a fine friable nature, in which so many kinds of plants produce roots abundantly. When the loam used is rather heavy an equal portion of good peat should be mixed with it, and in potting made the soil fairly firm.

When the plants have done flowering they may be either removed to a slightly cooler temperature or kept in the stove, and be kept dry at the roots, giving a little water occasionally till they have started into growth, then they should be shaken out and repotted. If large numbers of cuttings are wanted the plants should not be pruned back before being potted. Numerous side shoots will then be produced along the main branches; these can be taken off with a heel when they are 3 inches long, and the old plants pruned back to the required height; they will then send out fresh shoots and form good specimens. These old plants often produce a great number of shoots, and are very useful for cutting from. Young examples are, however, best for decorative purposes. When the whole stock of old plants is not required for another season the strongest should be selected for growing, and after being rested a month prune them, and take the cuttings from any not intended to be grown, and which of course will not require potting.

The cuttings that have been taken with a heel should have the cut ends dipped in a little powdered charcoal or dry sand to stop bleeding, and then inserted singly in thumb pots, a lump of good peat or turfy loam being placed at the bottom of the pot, the remainder filled with a mixture of half loam and half peat sifted through the half-inch sieve. When the cuttings are put in a little sand should be dropped into the hole made with the dibble, and the cutting passed into it and made firm, and receive a good watering through a fine rose. As soon as the soil has drained the pots are ready for placing under handlights, in propagating or Cucumber

and Melon houses, where they can have about 80° to 85°. They should receive daily attention to prevent moisture condensing on the leaves. As soon as condensed moisture is noticed inside the handlight it should be wiped dry, and a little air admitted for a short time, otherwise some of the young leaves will turn yellow and fall, and the cutting eventually rot at the collar. Given a good brisk bottom heat, and daily attention to the details above mentioned, cuttings of this much-esteemed winter-flowering plant will root almost as certainly as Crotons.—H. DUNKIN.

FREESIA REFRACTA ALBA.

THERE is an attractive group of Freesias at the present time in the greenhouse at Kew. Many of the plants above referred to are grown in large 24's, in which they have flowered successively for two years, merely receiving a top-dressing. For those requiring smaller plants, from eight to ten corms may be placed in 32's about the third week in July, using a compost of light loam two parts, leaf soil one part, and one part of well decayed horse droppings, with a mixture of sand. They should then be placed in a cold frame or pit. Plenty of air must be admitted, and on warm bright days the lights should be taken off to insure a dwarf sturdy growth. When growing freely they delight in abundance of water, and on no account should the soil be allowed to get dry during the growing or flowering period. An occasional supply of soot water and a top-dressing of fish manure will greatly assist them. Attention must also be given to staking, split bamboos being recommended for this purpose. If required to bloom as early as November they must be placed in a temperature ranging from 55° to 60° Fahr., but they are best brought on gradually, the flowers lasting much longer. If, as is the case at Kew, a second or even a third supply be grown the group can be renewed from time to time.

After flowering the usual method is to dry them off and store in bags, but this practice should not be followed. Better results will be obtained by allowing them to remain in their pots, gradually lessening the supply of water. In the following summer a top-dressing of the compost recommended should be given.—ALPHA.

GOOD VEGETABLES.

CHRISTMAS holidays are an excuse for most things, so perhaps you will allow me to plead them as an excuse for harking back to the admirable article under this heading, page 554. Your correspondent, "J. L. B.," is most kind in his advice to send early orders to the seedsman; happily that advice is not so much needed to-day as it was ten or fifteen years ago, when early orders were the exception, whereas from all good gardeners they are now the rule.

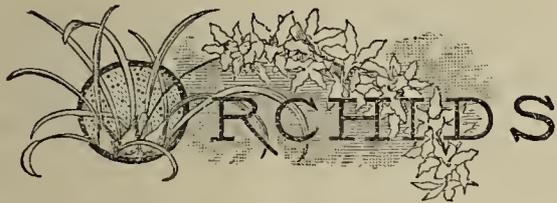
Would that it were possible to compress seed catalogues after the manner he indicates, the seedsman's lot would then be a (comparatively) happy one; but much as I deplore the bewildering list of varieties I fear that the seedsman has no alternative but to publish them, and although much has been done in the way of eliminating the names of varieties which have been proved to be synonymous with others, and in discarding those which have been superseded by newer and improved kinds, there still remains work to be done.

The seedsman is not, however, entirely to blame in the matter. Take, for instance, Peas which, as your correspondent says, are a difficult class. Is it to the seedsman's interest to grow thirty to forty kinds if he could induce his customers to be content with ten? Surely the smaller number would be easier to keep true and cheaper to grow in large bulks, than the small lots required of many of the kinds. But there are many reasons why he cannot reduce the list as much as he would like. Firstly, he has still to put in names which are synonymous because there still exist, in remote parishes, gardeners who are so sure that Sangster's No. 1 and Daniel O'Rourke are different Peas, that they year by year have a pint of each, out of the same sack, and come and tell you which was the earlier. Then one has the gardener who every year orders thirteen quarts of Peas in thirteen different varieties for his year's supply. I do admire that man, how he manages to secure a succession of Peas for table is always beyond my comprehension, but I suppose he does.

Then, again, we have the broad fact that tastes differ—one man will eat nothing but sweet peas which he usually calls "Marrow-fats," he cares nothing for early round peas, but will wait until his favourites are ready, and then wants them as long as he can have them. A second dislikes that class of Peas, and enjoys a class like Supreme, which has what I call a beany flavour. I knew a gentleman who cared for no other Pea but Champion of England. Again, we have the fact that certain kinds succeed better than others in a fixed locality, and as the seedsman has to send his goods north,

south, east, and west he must grow what his various customers require. It is, however, a mistake to suppose that he recommends kinds "which are least profitable to the gardener" purposely; on the contrary, he grows them in his trial ground alongside old standard sorts. Sown under the same conditions and at the same time, and consequently so far as that soil or locality is concerned he is probably in a better position to judge of their merits than the man who sows them as a succession crop in a garden. I do not know whether "J. L. B." has grown Duke of Albany, but if it crops with him as it does here he must make an exception in its favour when condemning exhibition Peas.

Finally, to show how opinions vary, I should take exception to one name contained in the small list of Peas (only five), page 556, for I consider Hundredfold one of the poorest Peas we grow; and what should we do without such old friends as Kentish Invicta, Little Gem, and Veitch's Perfection, which in my judgment is the best of all Peas except Prince of Wales, or the newer acquaintances American Wonder, Duke of Albany, and Stratagem. Potatoes would supply matter for a long article. Practical gardeners can best help in reducing the excessive number of names in vegetables by seconding the work of the R.H.S., and giving publicity to names which in their opinion are synonymous, and also by indicating their locality and soil when they give selections, so that the reader may know if he is under similar conditions.—A. H. PEARSON.



CATLEYA LODDIGESI.

This is an excellent Orchid, and does very well with us in the plant stove with a mixed collection of plants. We have two plants of this variety. One is grown in a pot in a compost of fibry peat, with a liberal addition of charcoal. This plant each year makes two and three new growths about a foot in length, and regularly opens its beautiful flowers—occasionally two, but more frequently three on a spike—early in December. The flowers are very lasting, as one plant when in flower is in the house for a month; after being returned to the stove the flowers remain quite fresh for a fortnight longer. The other piece is grown on a raft, but the growth is much shorter and weaker, the flowers consequently are much smaller, I therefore think it requires pot culture. During the growing season the plants are watered when dry the same as others. When growth is completed only sufficient is applied to keep the growths plump until the flowering period is past. Colour of flowers, sepals, and petals pale rose tinged with lilac, with light rose lip marked with yellow. Native of Brazil.

CYMBIDIUM EBURNEUM.

This also does well in the stove. Perhaps I ought to state the temperature during the winter months ranges from 60° to 70°; during very cold weather it frequently runs down to 55° by morning, and owing to the close proximity of a high wall it seldom reaches 70° during the day, never exceeding that figure. During the summer months it ranges from 65° to 80°. *Cymbidium eburneum* is singularly handsome even when out of flower with its graceful curved foliage. It flowers with us in January, and lasts in perfection four or five weeks, being in the house the whole time. The flowers are about 8 inches long, and carry from four to eight blooms each; colour pure white, with a blotch of yellow in the centre of the lip. This we grow in peat and charcoal. Last year they were surfaced with living sphagnum, which improved their appearance materially, and the plants are this year flowering better than usual. Whether this sphagnum is accountable for the improvement or not I cannot say. This species is well supplied with water all the year round.—HANDY ANDY.

VANDA AMESIANA.

This pretty species is proving a very valuable addition to our winter flowering Orchids. It has been in great beauty for the last seven weeks in the collection belonging to Edward Ellis, Esq., Manor House, Wallington. There is half a dozen fair sized plants, four of which are carrying two spikes each, the others having three spikes. One of these has sixteen leaves, and branching spikes, with more than a hundred buds and blooms, the total being 230 blooms. They have been grown by Mr. T. A. Glover, the gardener, in the East Indian house, but he has them now very tastefully arranged in the *Catleya* house along with *Oncidium varicosum*,

O. tigrinum, *Calanthes*, *Saccolabium giganteum*, *Odontoglossum Oerstedii* in a pan with three dozen blooms, *Cypripedium Sedeni*, *C. Maulei*, *Dendrobium Ainsworthi roseum*, *Lælia autumnalis*, besides others, and dwarf plants of *Poinsettias*, &c.

ANGRECEM SANDERIANUM.

A STRONG plant of the above commenced in June, 1888, to throw a spike which is now 3 feet long and continues to grow, but there is no more sign of it flowering than there was six months ago. The plant has not suffered in the least, and there is now another spike 18 inches in length and double the thickness of the oldest one. The latter has progressed very slowly since the other started.

LYCASTE PLANA.

In the same garden are some well bloomed examples of the above, the largest has thirty expanded blooms. There appears to be as much variety in this species as there is in *L. Skinneri*, for the flowers on the various plants are in no instance exactly alike, some having much darker sepals than others, and the markings on the petals and lip vary considerably. I have sent a bloom each from three plants for your inspection.—G. W. C.

[The varieties of which flowers were sent were well marked, and one in particular was very distinct, the sepals being unusually dark.]

VANDA KIMBALLIANA.

ONE of the smaller growing and small flowered Vandas, that named above, is yet well worthy of notice and a place in Orchid



FIG. 6.—VANDA KIMBALLIANA.

collections. The flowers are about the size shown in the illustration (fig. 6), and their chief beauty consists in the contrast between the pure white sepals and petals and purplish violet lip. They are freely produced, and as they stand well should prove useful for cutting; they would be charming for buttonholes. Messrs. Low & Co., Clapton, were awarded a certificate for this Vanda at the Royal Horticultural Society's meeting on August 13th, 1889.

NOTES ON EARLY ENGLISH HORTICULTURE.

(Continued from page 441 last vol.)

I HAVE already referred to the influence exercised in England by two great gardeners of France—viz., Le Notre and Quintinye, one of these distinguishing himself in ornamental, the other in useful gardening. Of Le Notre, indeed, it has been asserted that he may bear the title of the prince of gardeners, so much excitement being caused throughout Europe by the new style he introduced, and certainly there never was any gardener who led men to as enormous an expenditure. The outlay upon Versailles alone is reputed to have been considerably over a million of our money, and he laid out many magnificent seats beside in France and elsewhere. Quintinye's less showy work was done in a different way. His book on the management of fruit and vegetable gardens, which passed through so many French editions, was much read in England. Its translators were Evelyn, also later London and Wise. He had frequent intercourse with English gardeners, but refused to settle in this country though invited. At Cashiobury, the seat of the Earl of Essex, one of the noble patrons of horticulture in the seventeenth century, Le Notre was employed to lay out the park, and trees, presumed to have been planted by him, are yet to be seen. Cashiobury was distinguished in addition by its flower garden, said to have been one of the earliest arranged after the

Chinese style. Moses Cooke was head of the establishment in Evelyn's time, and he refers to Cooke as a man well acquainted with the art of gardening, and having a knowledge of mathematics. Later we read of him as concerned in the Brompton Park Nursery; according to some he was one of its originators. He did precede London and Wise, but there seems to be some confusion of dates. This is evident that he in 1676 published a small quarto upon the method of "raising and ordering" forest trees, also he wrote for Evelyn a treatise upon the art of making cider. Owing to the constant succession of wars with France during the reign of William III. and Anne there arose a great demand for cider, the wines, of which a supply used to be had from the continent, being almost excluded. Great attention was, therefore, given to the cider-producing Apples, and to other kinds, a variety of them were raised from seed. The original Ribston Pippin is supposed to have been a seedling of 1688, a seedling of a tree which came from Normandy, and it is said to have lingered till 1835, fruiting even in advanced age. Most of our Apples were of French descent; sometimes ships were brought over, many were raised from pips. The first Norfolk Beefing, or Biffin, probably reached us as a fruit, and seedlings were raised thereby. New varieties were obtained from such old English kinds as the Jennetting, which Ray so commends in 1688 for its early ripening. Seemingly it is the same that older writers called Johnnine, because the fruit could be gathered on the festival of St. John. Our gardeners for the above reason planted more Vines, and trained them along trelliswork as well as upon walls. Capt. Foster of Lambeth was a great grower of Grapes in the reign of William III., and there is still a Vine Street there. Lambeth was, indeed, at that period famous as a fruit-yielding suburb. Its Apricots, Pears, and Mulberries are often named, and quantities of Melons were also grown in Lambeth and in the adjacent Vauxhall.

Sir W. Temple, who was a well-known author of his day, and who studied gardening amongst other subjects, making many experiments at East Sheen, and afterwards at Moor Park in Surrey, praises the climate of London for its favourable influences upon most cultivated plants and trees. A radius of about ten miles round the metropolis, says he, is warmed during winter by the "fires and steams" of the town and its inhabitants. What would he have thought now of the heat arising from its millions of population? But unfortunately much of the land that was orchard and garden is built over. Writing two centuries ago, he remarks that foreigners agreed in commending the fruit produced in the south of England generally; still the shortness of our summers was a drawback. Hence he very sensibly advises the choice of such varieties of fruit trees as would ripen soon in Britain. Allusions which he makes to Chinese gardens prove that reports concerning these had already been brought to England by travellers during the seventeenth century, and attempts had been made to imitate them. While admitting the beauty of a regular arrangement in a flower garden, Sir William remarks that a studied irregularity pleases many eyes, especially if it be so managed as to give the effect of a natural confusion or wildness. But the Dutch formality was to be in the ascendant for a time. It was one of his pet notions regarding a garden that there should be a gentle slope from a terrace next the house to some broader extent below, the kitchen garden being formed beyond the flower garden, and flanked by fruit trees.

After needful deduction from the excessive praise given by Evelyn to the nursery at Brompton Park, conveyed in a somewhat ludicrous style, it is still evident that this establishment spreads its influence by degrees over the greater part of this island. If not positively the oldest London nursery, it ranks amongst these, since it appears to have been started nine years before the Revolution. The original extent afforded a good range for horticultural operations, this being about 100 acres. Part of the land had been a park, attached to the mansion once occupied by Henry Cromwell, and a long line of wall was found serviceable for Vines and other fruit trees. Lukar's name is the first mentioned in connection with this nursery. It seems also to have been spelt "Lucre," perhaps by printer's error, and probably its possessor did not think this appellation an improvement. The dates are doubtful, but Cook, already mentioned, became a partner, also London and Field, in or about 1690, the firm consisting then of four persons. Evelyn's observations, however, made in 1694, show that then George London and Henry Wise were the sole proprietors of the place, as he commends them alone for the wonders to be seen at this nursery, "the store and variety, the skilful making, plotting, laying out, and disposing of the ground to the best advantage," and so on. Indeed no other English, nor any foreign nursery, so well exemplified horticultural progress to that date. London had been gardener to Bishop Compton, at Fulham Palace, afterwards he was superintendent of the Royal Gardens—a man, says Switzer, very partial to horse exercise, which is not a common thing amongst gardeners I fancy.

London was, it is likely, the first gardener who had to assess the

damages done to a garden—its trees and shrubs. This he did for Evelyn, after Czar Peter had occupied Sayes Court, and not only neglected but wilfully damaged the grounds, as proved by London's statement of May 9th, 1698, his estimate of the outlay required being £55. He adds, however, that the injury to many of the shrubs was irreparable.

After many vicissitudes, it is curious to note that part of this old demesne of Evelyn's is now converted into a public garden. It was from the establishment of London and Wise that gardeners learnt to use evergreens more extensively in planting, and the firm obtained from abroad varieties of trees suitable for parks and shrubberies previously unknown here, and people came from all parts of Britain to study their improved modes of garden arrangement in all branches.—J. R. S. C.

REIDIA GLAUDESCENS,

THE species comprised in the extremely large and peculiar natural order Euphorbiaceæ are remarkable for their great diversity in habit. The majority are herbaceous plants with simple leaves and insignificant flowers, and are widely distributed through temperate and tropical countries. Some, the inhabitants of dry regions, assume the appearance of Cactaceous plants, with strangely formed succulent leafless branches and stems. Others, chiefly Crotons, are largely cultivated in our hothouses for the beauty of the foliage, and a few species of Euphorbia and the well known Poinsettia are general favourites owing to their brilliantly coloured bracts. The Phyllanthuses and Xylophyllas have flattened leaf-like branches, on the margins of which are produced bright and pretty little flowers, and are well worth cultivating; but for general elegance *Reidia glaucescens* can scarcely be surpassed by any of its numerous strangely varied congeners. This plant was introduced to the Royal Gardens, Kew, from Siam in 1864 by Mr. Thomas Christy, jun.

The genus *Reidia* comprises about a dozen species, chiefly natives of India, but mostly inferior in decorative value to the one under consideration, which, although of such recent introduction, has become a great favourite with cultivators. It owes much of its gracefulness to the slender branches along which the oval leaves are arranged in a two-ranked (distichous) manner, each branch greatly resembling a pinnate leaf. From the axils of the true leaves hang the flowers on filamentous peduncles, and to a casual observer the flowers appear to spring from beneath the branches. The flowers are small and uni-sexual, those at the lower portion of the branches being staminate, with four deeply fimbriated sepals, and those on the upper part pistillate, with six similar sepals and longer peduncles. The sepals in both forms are of a greenish tinge towards the margin, crimson in the centre and on the under surface, the peduncles also being tinged with red.

The plant is of easy cultivation, as it only requires a light open compost of loam, sand, and peat or leaf soil, with good drainage, and a brisk moist stove temperature. Under such liberal treatment it thrives rapidly, and as the small but pretty flowers remain on the plant for a considerable time during summer and autumn it amply repays for cultivation; in fact, even when its flowers have fallen, the graceful habit of the plant renders it very attractive and distinct for associating with other plants in groups.—L.

FORCING RHUBARB.

UNLESS roots of the earliest Rhubarb are grown for forcing there is sometimes difficulty in maintaining a supply during the early months of the winter, for whatever convenience there may be they are known in some cases to absolutely refuse to grow for several weeks, causing much inconvenience and anxiety. With those who have some of the early varieties this difficulty is perhaps unknown, and since this question of variety was so fully brought forward last year by several correspondents of the *Journal* growers are encouraged to act on the suggestions, and secure new stocks either by roots or seeds.

On the season no doubt depends the issue of easy forcing or the contrary, for, like most deciduous plants, frost hastens the maturity and rest apparently required previous to the excitement into renewed growth. That this is true is proved by the fact of many exposing the roots to frost after lifting before they are taken indoors, and to the absence of frost may be attributed the slowness of the earliest responding to the warmer conditions provided for an early supply this winter. My own experience does not stand alone in this matter, for I learn from other gardening friends that the same difficulty has presented itself. Mr. Hilton considers a foot or 18 inches sufficient depth of manure for maintaining gentle heat, but this would depend on the size of the bed and its position, for if exposed to cold winds and snow a narrow bed of that depth would

quickly lose its heat, not be easily restored without further additions being made.

The best system of outdoor forcing I have seen was to have the Rhubarb planted in beds two rows in each, and between them was a trench 18 inches deep and 2 feet wide; this filled with sweetened manure acted at once on the roots, and never failed to excite an early growth. The pots are placed over the crowns in the ordinary way, and only partially covered with litter. The open trench, which may be cleared of the manure at any time before autumn, would act favourably on the early ripening of the growth, and prepare it for an early start, as a large surface is in this way open to the action of the frost, as well as that of the sun and wind.—W. S.



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY.

(Continued from page 15.)

Lady Mary Fitzwilliam (Bennett, 1882).—This is a Hybrid Tea Rose, which makes very short growth. We can hardly call it weak, because that generally implies some debility of constitution and want of free-flowering qualities, whereas this Rose is of hardy, lasting, and strong, though quite dwarf habit, and very free flowering, which weak Roses are not. A capital sort. It is surprising what a number of good and quite large blooms a very small plant will produce. Not liable to mildew, but apt to be gummed by rain. The blooms come well, of excellent shape, and fair lasting qualities, the petals being large and fine. A good autumnal Rose, and one of high merit in many ways. Changeable in colour, often coming nearly white.

Lady Sheffield (Postans, 1881).—A pretty good show Rose, of rather poor growth, distinct colour, good shape, and fine stout smooth petals, but with no further peculiarities.

La France (Guillot, 1867).—This is a Rose by itself, of great merit, and of a thoroughly distinct type, supposed to be a Hybrid Tea. Two followers have lately appeared—Duchess of Leeds, a seedling; and Duchess of Albany, a sport—both very similar to it in general appearance. The growth and foliage are good and very characteristic, partaking much more of the Tea habit than such acknowledged hybrids as Her Majesty and Mary Fitzwilliam. Not very liable to mildew, but rather sensitive to rain. The blooms come generally well, but sometimes the strongest are too spherical and ball like, losing their points. Petals good, but centre rather weak; beautiful colour, but rather difficult to keep "clean." It should have a striking silvery brilliance. In freedom of bloom, and as an autumnal, of the very highest class; of the largest size, but a bad laster, and must be cut small in hot weather, as it opens quickly. Has a most distinct and exquisite scent. Merit on this point would be difficult to settle, as tastes differ so much. I saw lately somewhere a selection of six Roses as the sweetest scented, and they all had the Tea scent, which to me is not pleasing. I should place the Rose under notice at the head of the list. It would occupy the same proud position in the estimation of a good many as a general all-round Rose for everybody, for it is hardy and of strong constitution, and will do well, or even better, on rather light soil.

Le Havre (Eude, 1871).—Of fair but not strong growth, with good foliage; not specially liable to mildew, but rain will impair its good qualities. A beautiful show Rose, one of the very best examples of the imbricated form, but the blooms will not come of good shape or colour in bad weather. Like Fisher Holmes and some others, this Rose shuts up at night, the outer petals crinkling inwards; not free in bloom or a good autumnal, but with a very high reputation for its lasting qualities.

Lord Macaulay (W. Paul, 1863).—Of fair growth and foliage, presenting no striking peculiarities. Of good bright colour, and very full shape, but medium in size, and not first class in free flowering or autumnal qualities.

Louis Van Houtte (Lacharme, 1869).—Of weak growth and small foliage; not much liable to mildew, but is injured by rain, and will burn in a hot sun. The blooms will only come fine if strong shoots are produced; and this is a difficult task with purchased plants, as the constitution is weak and does not bear removal well. It is best to bud it annually; but plants which have never been moved will sometimes do well as cutbacks for a few seasons. Not free blooming or good as an autumnal, requiring high culture, but a grand bloom when you get it good, with stout petals, full centre, rich colour, fine globular shape, and full size. The lasting powers of the blooms are particularly good, and it is worthy of notice as an example of the old manners and customs of Roses, that many of the weakest growers have the most lasting flowers, and *vice versa*. For instance, Marquise de Mortemart and Madame Ducher are, I should think, about the worst growers among H.P.'s that we have, and these two Roses are especially noted for the lasting qualities of their blooms, while the strong growers, Dupuy Jamain and Thomas Mills, show the opposite side of the picture.

Mabel Morrison (Broughton, 1878).—A pure white sport from Baroness Rothschild, but smaller, and very weak in the centre; is only worthy of notice as a seed parent of Her Majesty.

Madame Charles Wood (Verdier, 1861).—Of robust but weak growth; does not like being moved, and will not do well in some places. In fact, it does so badly with me that I am afraid I shall have to discard it. The blooms often come divided, and rain will spoil them. Yet sometimes a strong fine Rose, with large petals, well filled in the centre, and incurved in a characteristic manner. Not a free bloomer or good autumnal, but a good lasting flower, of full size.

Madame Clemence Joigneaux (Liabaud, 1861).—A very strong grower, with fine coarse foliage, not liable to mildew or to be injured by rain. The blooms are apt to be rough and badly shaped, and it seldom has sufficient form or smoothness for exhibition. Of large size and very sweet scented, but rather a dull colour. A free bloomer, but not particularly good as an autumnal. A hardy useful Rose for cottage gardens, a strong constitution, and will do pretty well in light soil.

Madame Crapet (Fontaine, 1859).—An old Rose, but still hard to beat at its best, as a smooth refined show Rose of the popular imbricated shape. Rather a weak grower, and liable to mildew, but can stand some rain, and well repays high cultivation. This Rose, like a good many others, has its good and bad years, and was particularly good with me last season. Capital imbricated form, very smooth and full, of good lasting quality and fair size. Not a free bloomer or good autumnal, but, though never of strong or hardy constitution, cannot be suspected, like some others of its age, of having undergone any deterioration.

Madame Ducher (Levet, 1879).—This is perhaps the worst grower of all H.P.s. It is impossible to do anything with it except by annual budding on strong stocks, and even then it will not grow many inches. This being the case, it is of course only grown for show purposes, and a lovely bloom may sometimes be obtained, large, bright, and smooth, of perfect shape, and (as mentioned before) wonderfully lasting. It will "stand" and maintain its lovely form in a hot tent as firm as if carved in wood.

Madame Eugène Verdier (Verdier, 1878).—Grows well as a maiden, though spring growths of cutbacks are sometimes very short; but the blooms come quite as well, and the foliage is fine. Not very liable to mildew, but much rain will cause the petals to "gum" (stick together), and a slight shower will stain the colour. The blooms are likely to be coarse, and are not often of refined shape or appearance; but they are very large, with wonderfully fine petals, and well-filled centres. Fairly free in bloom, and a pretty good autumnal; the shape is globular, but delicacy and regularity of outline are often wanting. I showed one last season that was very much like a prize Cabbage in shape and (I was almost going to say) size, for this is quite one of the largest Roses.

Madame Gabriel Luizet (Liabaud, 1877).—A Rose of distinct manners, of strong vigorous growth, after the manner of a summer Rose. The foliage is good, and maintained throughout the autumn more completely than any other H.P., but is very liable to mildew. The blooms are occasionally divided, but generally good. On cutbacks they all come at once (also after the fashion of summer Roses), and as they will gum and rot with wet, two or three hours of rain at a critical time will destroy three-quarters of one's crop. It is not good as a laster and below the average in size, but has fair petals and centre, with a capital point, and is noted for its colour, which is perhaps the most attractive shade of pink we have. A very free bloomer in the season, but one of the worst autumnals we have, with me. Others say they find it quite good in this respect, but I should say that I do not get on an average more than one autumnal bloom to each large plant. Hardy, and of strong constitution, very thorny and free in growth, forming quite a big bush in good soil.

Madame Hippolyte Jamain (Jamain, 1871).—Of good smooth growth and foliage, not very liable to mildew, but injured by rain. A coarse Rose, generally rough and irregular if grown strong, but sometimes of even globular shape, and then valuable for exhibition, as it is very large, full, and lasting. Not of much use as a free bloomer or autumnal. It should be noticed that there is a good Tea Rose of exactly the same name as this, besides Hippolyte Jamain H.P.

Madame Isaac Pereire (Margottin, 1880) seems to be a Perpetual Hybrid Bourbon, of strong good hardy growth, with fine foliage. I have not tried this Rose very long, but it has not been affected with mildew, and the blooms have come fairly well, not of very refined shape, but of extra large size. It is free flowering, and is well endowed with the two special good points of the Bourbon Rose, being very sweet scented and a thoroughly good autumnal.—W. R. RAILLEM.

(To be continued.)

ON IMPROVING ROSES.

It is not an uncommon occurrence for Roses to grow grossly and produce comparatively few blooms, and these only of poor quality, while some are found to make poor growth with few or no flowers, and in both cases the cause of the mischief may arise from insufficient root action; in the first case noted the roots being gross, and the rootlets almost wholly absent, and in the second instance few roots of any kind being produced at all. Though not a rule without the proverbial exception, it is a fact that many rootlets produce a growth short jointed stiff, hard, and free to flower. Once secure such a condition under ground,

and the rest is pretty sure to follow. Food may be given with benefit, the knife being employed with certainty either in pruning or in thinning out extra growths, and plenty of good blooms arrive in due time. But with gross-growing Roses, how is this condition to be brought about? I have seen transplanting, or rather, to speak more correctly, lifting and replanting tried, but with very bad results. And no wonder; the plants to be operated on have a strong, unripened growth, drawing, doubtless, a very inferior class of food through their corpulent root members. But, still, it is a food. Up come the plants root and branch, and our watery fed friends very soon find themselves absolutely starved, for the roots are of a class which do not quickly adapt themselves to changed circumstances, and the final result may be shortly stated as a lot of cut-back stumps, with a few weakly growths which have no power to react on the poor roots, and the Roses are lost and transplanting condemned. Something of the same kind happens with the weakly plant, though in this case the reason would be for want of roots to make anything of. Transplanting Roses to be beneficial must be a settled method of culture, so that the roots may be found in numbers radiating from the rootstock, and if a condition of grossness appear then the check the plant receives will be of a short-lived nature, not so lengthened as to stop supplies, as many of the roots will resume activity at once, but in a less lively form, and the result in spring will be a sturdier, firmer growth, perhaps not much less strong than in the previous season, but certainly more consolidated and productive of better bloom.

What, then, ought to be done with bushes which have been left for years in the same place, and which have become so unsatisfactory as to call for prompt measures to secure a free-flowering habit? I should say let the plants remain, but cut the roots; and here it is necessary to explain that unless "cutting the roots" is undertaken in a judicious manner the results may be as disastrous as lifting and replanting would have been. If the plants have been from three to five years in the same spot, then in most cases it would be perfectly safe to dig narrow trenches round the plants, cutting every root in the process, and that with the best results; but should the plants have been left for many years, and increasing in grossness, then such a drastic measure would defeat the purpose in view, and most probably death would be the result. In this case the common sense method would be to inspect the domestic arrangements with caution, and by cutting clean off from the culinary department the one half of the roots the plant itself would be kept in health until those so cut had formed a foraging company, when the improved class of food would be apparent the first season; then the following year complete the process by cutting off the half left the previous season, and it would not be amiss perhaps to take a look at the half cut at that time, and if any young roots should be found exhibiting a disposition to ramble they also may be cut. In order to secure the very best results from the above treatment a good dressing of loam or other good material should be applied close to the cut portion, or if plenty of fresh soil can be had then fill up the trench entirely with the new, raising any of the smaller roots, and laying them in this; but even where there is no soil to add, the mere cutting of the roots and turning over and breaking up the soil will be found of very great benefit. If dung is to be used let it be placed as a mulch above the roots, and that portion where the young roots may be expected to make growth. In the case of very thick-rooted plants it will be advisable to prune to a good plump bud for the first year. Afterwards all ugly growths may be cut level with the ground to the advantage of the plants. It may be remarked that own-root Roses are more apt to require root-pruning than those huddled on the Manetti, and it is equally to be noted that these remarks do not apply to any other garden Rose, which need not on that account be altogether neglected.—B.

HARDY ROSES.

THE late severe frosts have been a fair test of the hardiness of some sorts of Roses over others. It has never been in my power to cut fair blooms from standards unprotected in the month of January before. Out of about fifty varieties on the 5th I cut Général Jacqueminot (quite bright), M. Annie Wood, Gloire de Dijon, Souvenir de la Malmaison, Alba Rosea, and a dark crimson which I am unable to name. This I have submitted to many judges at shows and to Rose growers (Smith's of Worcester among others), with the result of seldom, if ever, getting two alike in deciding its name. The name I had with it was "Prince Imperial," but I find no such name in catalogues. Out of about half a dozen dark Roses this I consider my best. In summer it is much darker, and of a rich velvety shade. I should be glad of any information respecting it.—J. HAM.

FRAGRANT ROSES.

SOIL has an influence even on the fragrance or otherwise of Roses, but climate seems to exert the greatest influence on perfume. When the atmosphere is dry flowers have little or no fragrance. A Rose which at midday would be pronounced scentless, is in the evening, or in the morning when the dew is on it, extremely fragrant. Moisture seems essential to a fulness of perfume. Blooms set up in damp moss are more fragrant than others in water in cups on a bare green stand or a baize covered table. A bed or border of a dozen or any number of varieties will have perfume in proportion to the per-centage of varieties having that characteristic. It is vain expecting perfume in Roses that are selected indiscriminately, trusting to the sentiment of enthusiasts, who, planting Roses, expect the air to be for ever afterwards laden with perfume. Those planting a select hundred may find that the very thing they require is lacking, and for cutting purposes there is no question of

a fragrant Rose being most esteemed. Some who understand Roses for something more than exhibitions, and for display in gardens, plant largely of the ignored Cabbage Rose, and other old and esteemed favourites, for the sole purpose of cutting. They go further, and plant by the dozen or hundred those that have the desired characteristics of beauty with floriferousness and scent. These are, or should be, termed garden Roses—showy and sweet. To adhere strictly to that would, however, exclude some of the very best for decorative purposes. Those that require scented Roses must plant them, and some of those that are good alike as garden and drawing room are the following:—

Of Hybrid Perpetuals few have the brilliancy of Alfred Colomb, carmine crimson, which may not be always as full scented as desired, yet it is a fine masser, very showy. Charles Lefebvre in mass is a dazzling crimson scarlet, rich and velvety, and mostly fragrant. Earl of Dufferin is an early, continuous, and late bloomer, brilliant velvety crimson, and full scented. Harrison Weir, velvety crimson, enlivened with scarlet, and full scented even in autumn. Lady Helen Stewart, crimson scarlet, commencing with the earliest and continuing with the latest, an exceedingly fine Rose, and highly perfumed. Mrs. John Laing, light pink, very profuse, continuous and late bloomer. Mrs. Jowitt, crimson shaded lake, generally, but not always, very fragrant. Marchioness of Exeter, rose, flushed cherry red. Madame Ferdinand Jamin (American Beauty), rosy carmine, as good as sweet. La France, satiny pink with rosy centre, is mostly sweet. R. C. Sutton, deep rose, reverse of petals white, very free, and one of the sweetest Roses extant. Countess of Pembroke, satiny rose, usually fragrant. Sir Rowland Hill, ruby claret, shaded maroon. Duchess of Albany, deep pink, of the La France type, are novelties of great merit, and very sweetly scented. Those are all good growers, making effective beds or groups as dwarfs, either worked or on own roots. Others that may be noted as generally good and sweet are Beauty of Waltham, cherry crimson, hardy and free; Abel Grand, silvery rose, early and free; Sénateur Vaisse, crimson, an old favourite; The Puritan, pale yellow, changing to white; Madame Gabriel Luizet, satiny rose; Mr. James Brownlow, bright carmine. The last, with Marchioness of Lorne, are new; the last is rose shaded carmine, both promising to be good garden Roses. Caroline d'Arden is also new, soft rose, and a very profuse bloomer. Beauty of Beeston is a dwarf Charles Lefebvre, and more open, having the same brilliant velvety crimson colour, and is in strong contrast to Bessie Johnson, blush-white. Catherine Bell, rose, free flowering and of very free growth, almost, if not quite, climbing, which class cannot endure hard pruning, being best treated as pillar Roses. Madame Désir, salmon rose, rather small; Madame Wilson, rose, free flowering; Madame Montel, delicate rose; Heiurich Schulteis, rose pink; Miss Hassard, pinkish flesh; and Miss Poole, silvery rose, shall close my list of Hybrid Perpetual Roses with scent, with Madame Eugène Appert, rosy pink.

As Hybrid Perpetuals are everybody's Roses from their being perfectly hardy, we may mention others of the same class, which, if not scented, are nevertheless first-class for buttonholes—viz., Emperor, very dark, *i.e.*, black; Empress, white, pink centre; and Brilliant, scarlet crimson. Roses that are worth growing in quantity are Charles Lamb, bright red; Anna Alexieff, rose pink; Glory of Waltham, crimson; Brightness of Cheshunt, vivid brick red; Charles Dickens, rose; and Garden Favourite, pink. Ella Gordon, bright cherry; and Gloire Lyonnaise, chrome yellow, edged silver-white (and fragrant into the bargain), are both large.

To return to odoriferous Roses we may mention the somewhat uncommon crimson Perpetual, or Rose du Roi; Damask, light crimson, very fragrant; and of the Perpetual Moss Souper et Notting Rose is sweet. Of this class Mrs. W. Paul is one of the best, and Perpetual White Moss indispensable, though Blanche Moreau, pure white, is superb. Those all require close pruning and liberal treatment. Of the Ile de Bourbons the only one of note for scent is Queen of the Bourbons, fawn.

Of the Tea-scented, which, however, are not hardy, but are best grown outdoors against walls with south or south-west aspects, Comtesse de Nadaillae, coppery orange, salmon centre; Madame Etienne, rosy, changing to pale rose; Dulce Bella, coppery rose; Viscountess Folkestone, cream pink, salmon centre; Nancy Lee, satin rose; Michael Saunders, bronzy pink; and Viscountess Falmouth, pinkish rose, for low walls, adding W. F. Bennett for affording the finest of all red buds for cutting. The last five are Hybrid Teas, and to those may be added The Puritan, already named in the Hybrid Perpetuals. For high walls or buildings Maréchal Niel must head the list. To see this Rose at all perfect it requires to be grown under glass, but there is no dispute about Waltham Climber No. 2, red, and one of the sweetest Roses in existence; and of Noisette Céline Forestier, rich yellow; and Jaune Desprez. No Rose whatever is so satisfactory against a wall as Gloire de Dijon. Some say it is sweet, and others fail to be struck by its fragrance. Then there is the Banksian Fortuniana, white, white and yellow, cream and yellow, which is passed by Jaune Sérin, bright yellow. These require a south wall, and flower early. They require long pruning, as in fact do all the climbing Roses, particularly Musk, which have the flowers produced in large clusters late in summer, and when the atmosphere is moist are most distinguished by their musk-like fragrance. A wall with a south or south-west aspect is necessary. Berherifolia Hardi has single flowers, yellow, with maroon spots, and is of dwarf habit. Fringed, pink, semi-double, Princesse de Nassau, cream, changing to white, and Rivers' Musk, creamy white, and of moderate growth.

For covering wirework in the open, Ruga, flesh; and Splendens,

white tinted flesh, are the sweetest of the Ayrshire Roses, and none other by scent in climbing Roses have attracted.—UTILITARIAN.

CANKER IN FRUIT TREES.

I OWE some apologies of long standing to Mr. A. Young and others who favoured me with specimens of Apple tree wood some time ago for inspection, and a request to reply to through the Journal. I did not consider Mr. Young's specimens were canker wounds, but in two cases out of three there appeared to have been bits of bark taken off by some animal, probably a rabbit.

Another case was a piece of Apple tree wood, the centre of which was eaten away by a grub. This was quite a new enemy to me I am pleased to say, and was in no way connected with canker.

While on the subject I beg to acknowledge the pleasure it gave me to read "W.'s" last references to this subject, and also how much I enjoyed in fancy the rambles from one lovely spot to another in our county, all of which I have had the pleasure of visiting within the past few years. When Mr. Tonks held me up to readers as a model of ignorance by not knowing thrips I did not think it worth while to reply, but I may now state that thrips are, unfortunately, as familiar to me as earwigs or woodlice, and about as likely to be mistaken by me. It would be quite as near the truth to say I could not tell his little fat roasters (which we put out of his garden) from ferrets, a greyhound from a mastiff, or a jackdaw from a swallow.—J. HIAM.



EVENTS OF THE WEEK.—The Royal Society has a meeting at Burlington House to-day (Thursday) at 4.30 P.M., and the Linnean Society at 8 P.M. Messrs. Protheroe & Morris have a sale of Orchids at their Cheapside Rooms on Friday, January 17th. The Royal Geographical Society meets on Monday, January 20th, at 8.30 P.M., and the Society of Arts on Wednesday, at 8 P.M.

— AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held January 14th, Mr. James Douglas in the chair, the following ladies and gentlemen were elected Fellows of the Society—viz., Viscountess Wolsley, Rev. A. B. Alexander, C. Pennell, J. E. Brown (Australia), T. R. Butler, D. Campbell Brown, T. H. E. Compton, J. Cooper, De B. Crawshay, Mrs. Morland Crofield, Mrs. Curwood, A. Dean, S. H. Dean, J. T. Diamond, J. T. Gabriel, Rev. Geo. E. Gardiner, F. T. Good, Mrs. Grinling, Mrs. Grove, E. A. Hambro', J. Henderson, W. H. Hudson, C. Jeffries, J. W. Justen, H. H. Kneeling, H. J. Kershaw, John Laing, W. B. Latham, T. Laxton, Miss Agnes Mellish, Arnold Moss, R. R. B. Orlebar, W. Owen, Rev. F. Page Roberts, W. W. Palmer, F. A. Philbrick, Q.C., F. W. Prior, Hugh Pye (Australia), J. Rawlins, W. M. Rose, Miss Rotch, Geo. Steel, A. J. Veitch, J. C. Wakefield, H. Wallis, A. C. Wheeler; as Associate, John Slack.

— THE weather in the south of England still continues most variable, rain and cold winds alternating with bright warm days. Sunday, January 12th, was quite exceptional, however, the sun shining brilliantly from an unclouded sky the whole day, followed by a clear starlight night, but no frost. A daily paper says, "Seldom at so early a period of the year have the parks presented so animated a spectacle as they did yesterday. Hyde Park and Kensington Gardens were crowded, as well they might be, considering the spring-like balminess of the atmosphere and the delightful sunshine. Sitting out in the open air was, during some portions of the day, quite a pleasant and almost a safe thing to attempt, and cumbersome greatcoats were very generally discarded. Parks have become not merely agreeable luxuries but absolute necessities to city life, and the local administrator who economises in this item of expenditure does so at the cost of the health and happiness of the people." Monday was damp, dull, and cold, but two such days as that preceding it could not be expected together at this time of year.

— THE WEATHER IN THE NORTH.—The days have, with almost regular alternation, for some time been fine and wet. Very high winds with pelting rain have occurred on many nights lately. Only twice for the last fourteen days had the thermometer fallen to freezing point, 6° of frost being registered for a short time on the night of the 2nd inst.—B. D.

— AT a Committee meeting of the UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY, held at the Caledonian Hotel on Monday last, Mr. R. Scott in the chair, five new members were proposed from Cardiff, Halifax, Battic, Sussex, Roehampton, and County Cork. Messrs. A. J. Green and Geo. Dixon were appointed Auditors, and it was unanimously resolved to ask Mr. J. Wright to take the chair at the annual general meeting, which will be held at the same hotel on February 10th at 8 P.M.

— PREVENTION BETTER THAN CURE.—Now the influenza is so prevalent the following note may be of interest. All the greatest authorities advise the taking of quinine twice a day as a precautionary measure. As this epidemic is spreading so rapidly in all directions Messrs. Sutton & Sons of Reading lost no time in adopting this suggestion. They at once ordered between 500 and 600 doses of quinine to be delivered daily for gratuitous distribution amongst their large number of employes. This action has been gratefully appreciated by their hands, and has had a most successful result.

— THE FOLLOWING BULBS, PLANTS, AND SHRUBS ARE NOW IN FLOWER OUT OF DOORS AT BLACKROCK, CORK:—Narcissus pallidus præcox, Tazettas Scilly and Paper White; Snowdrops, all sorts; Hepaticas, double red; Tritelia uniflora; Lenten and Christmas Roses in endless variety, particularly the Lenten Roses from Mr. Archer Hind's collection. There are all sorts of Primroses, double and single, Aubrietia græca, Gentiana acaulis, Violas of sorts, Iris stylosa, Schizostylis coccinea, Emperor Stocks, and Wallflowers. The beautiful Prunus Pissardi is becoming full of buds, Mahonias are in flower, Pyrus Maulei and Azara microphylla are crowded with bloom. The Daffodils are very promising. We shall be having 100,000 blooms of Ard-Righ in one month from date all in the open air.—WM. BAYLOR HARTLAND.

— ROYAL BOTANIC SOCIETY OF LONDON.—A meeting of this Society was held on Saturday, January 11th, Dr. R. C. A. Prior, F.L.S., in the chair. Among the donations presented to the museum was a specimen of the Double Cocoa Nut or Coco de Mer, now known to come from the Seychelles, a small group of islands in the tropics. For some hundreds of years these nuts have been occasionally found washed up by the sea, where their extraordinary appearance, large size, and mysterious origin gave rise to many stories of miraculous virtues in the cure of diseases, some are even said to have been sold for their weight in gold. This specimen had belonged to General Gordon, and was given by him to General Gerald Graham, by whom it was presented to the Society.

— FLORAL DECORATIONS AT THE COUNCIL HOUSE, BIRMINGHAM.—The present Mayor of the city, Mr. Councillor Clayton, gave two balls on an extensive scale recently, one on the Wednesday, Jan. 8th, for his friends, the next on the following evening, a fancy ball for children. Mr. W. Spinks, Manager of Messrs. Hewitt's nurseries, supplied all the floral decorations, and certainly the finest display ever seen in Birmingham, and that is saying a great deal. Artistic arrangements, and an unlimited supply of specimen Palms, and a host of Poinsettias, Euphorbias, Richardias, Hyacinths, Tulips, Lily of the Valley, and so many other plants were everywhere, and the Council House is a very extensive place, well suited to floral decorations. A splendid ice cavern was fitted up, occupying a spacious room, and under the electric light was an object of especial admiration. In the reception room, fitted up with oriental splendour, a group of Orchids and Adiantum farleyense was a prominent feature, as well as two groups of Calanthe Veitchi and Ferns. A large basket of Narcissus blooms was presented by Mr. Spinks to the Mayoress.

— SUTTONS' TRIUMPH MELON.—Now that this Melon is for the first time placed in the hands of the public I thought a little of its history might not be out of place in the Journal. It is the result of a cross between Scarlet Premier and Eastnor Castle Green-flesh, and is of superior flavour. I have found it a free setter, and to succeed well in frames with little or no artificial heat. It obtained a first-class certificate at the Crystal Palace, and the first prize at the Chiswick Summer Show two years in succession, and various other prizes. I have found it excellent for pot culture, but my practice has been chiefly to grow the plants on the restricted system in frames—viz., three plants to a light, and from two to three fruits on each plant. For the last two seasons, however, I have been unfortunate enough to be troubled with a bad case of clubbing in the Melons, so that the variety has not really had a good and fair trial with me. With others I hope the good qualities of this Melon will be developed.—W. PALMER, Thames Ditton.

— GARDENING APPOINTMENT.—We are glad to learn that Mr. James Udale, lately of Elford Hall Gardens, Tamworth, has been appointed gardener to Lord de Ramsey, Haverland Hall, Norwich.

— WE are informed that MESSRS. BARR & SON have removed from Tooting to Long Ditton, and the nursery at Tooting has ceased to exist. Narcissi and other specialities of Mr. Barr will be cultivated on an extensive scale in the new establishment.

— A CORRESPONDENT desires information on the manufacture of SUGAR FROM BEET, also on the preparation of condensed milk, and will be obliged if any of our readers can recommend any published work on those subjects in English, French, or German.

— THE DUTCH HORTICULTURAL SOCIETY.—The dates for the meetings of Committees of the above Society in Amsterdam during 1890 are as follows:—12th February, 18th March, 15th April, 14th May, 19th June, 17th July, 26th August, 25th September, and 12th November.

— A MELBOURNE correspondent informs us that they are having "a very fine season, plenty of rain, heavy crops, and abundance of fruit. In all my thirty-six years' experience I never saw better prospects for both agricultural and horticultural interests, and this applies to the whole of Australia."

— THE annual dinner of the WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL SOCIETY will take place on Monday, January 20th, at 6.30 P.M., in the Dog and Fox Hotel, Wimbledon Hill. This Society is advancing rapidly in importance amongst those in the suburbs of London, and a large gathering is expected. Dr. Walker and Mr. G. Lyne are the Hon. Secretaries.

— THE BIRMINGHAM CHRYSANTHEMUM SOCIETY.—We have to record a very successful financial result of the Society's Exhibition in November last, the total income of the Society for the year being £500, and the expenditure £420, having a balance in hand on the year of £80, and a reserve fund of £277. It is very probable, we hear, that the large prizes will again be offered next November for forty-eight blooms.

— THE annual dinner to the heads of departments in the King's Norton Nurseries, as well as the branches of the business of MESSRS. POPE & SONS, BIRMINGHAM, was given by Mr. John Pope, at his residence, last week, when several gardening friends were invited, and a toast to the health of Mr. and Mrs. Pope, and Mr. Pope, senior, was given by Mr. Brown, of Elmdon Hall Gardens, and met with cordial reception.

— THE BLACK MAZZARD CHERRY.—I was somewhat interested in the article on the Black Mazzard Cherry tree at page 16. We have here some wild Cherry trees, which were found in a wood. The fruit is small, light red, very sweet and fleshy, having a smaller stone in proportion to its size than the Mayduke, and it ripens about the same time as the Morello. It is a free grower and an abundant bearer, and I am of opinion would be a capital variety to bud or graft other varieties upon, while its free growth renders it ornamental as a deciduous tree.

— THE WEATHER is, and has been, mild for the season. Flowers have never been absent from the borders all winter, and one of our seedling Snowdrops was in full bloom on the 8th of January, being much earlier than any other variety.—W. T., *Blantyre*.

— THE WEATHER IN DECEMBER.—The weather during December was very variable, sharp frosts and spells of mild weather alternating in rapid succession. On the whole very dull, there being only seven bright days. Rain fell on seventeen days. Total fall for the month 1.66 inch, of which 0.50 fell on the 21st. Highest shade temperature 53° on the 17th, 18th, and 22nd; lowest 17° on the 29th; lowest on grass 14° on the 29th. Number of days at or below 32°, in shade twenty-two, on grass twenty-five. Barometer variable, highest reading 30.80 at 9 P.M. on the 5th, lowest 29.32 at noon on the 10th. Garden spring running 18 gallons per minute on the 31st.—J. TUNNINGTON, *Ketton Hall Gardens, Stamford*.

— I AM herewith sending a brief report of the results that have been achieved by the LEEDS PAXTON SOCIETY CHRYSANTHEMUM COMMITTEE, which commenced operations only seven weeks before the Show was held, and without a penny to start with, but with the assurance that the other shows had "always been a failure," and the previous one resulted in a deficit of £40. The total receipts amount to £242 4s. 5d., and the expenditure has been £183 3s. 1½d., thus leaving a balance of £59 1s. 3½d. towards the next Show. The £141 5s. 6d. was received in

subscriptions, and £84 15s. for tickets of admission.—THOS. BONSALE, *Secretary*.

— GOOD VEGETABLES.—In reply to "W. F.," I have grown Michaelmas White Broccoli, but do not think it so good as Veitch's Autumn Giant, and it comes into use about the same time, and do not stand the frost as well. I have not tried Suttons' Favourite or Autumn Mammoth Cauliflowers, but their First Crop and King of the Cauliflowers are the best early Cauliflowers I have tried, but if the first two are better I shall certainly try them. Veitch's Perfection Pea is very good in every way, but I consider Prince of Wales better, and about the same height. Duke of Albany is a very large podder, but very few of them with me; the Duchess of Albany is much in the same way as the Duke. Both these and Satisfaction are inferior to Telegraph with me. There are so many sorts that are good, but if there is one sort which is better than others it is better to grow that one only, thanking "W. F." for his selection all the same.—J. L. B.

— BULLFINCHES AND FRUIT BUDS.—I am astonished that people will continue to harp on the old string that the buds pecked out by birds each contain an insect. I could understand it if the birds given to this practice were insectivorous, but they are not; they are vegetarians, living, except in the breeding season, almost exclusively on vegetable food. Why, then, in the name of common sense should there require to be a grub in each bud? Now, as I pointed out years ago in the Journal, the buds taken are blossom buds, and it is the stored up saccharine matter in the bud, the honey secretions of the future flower, which the birds are fond of. I have no doubt the birds noticed by Mr. Murphy on his Chrysanthemums were either cole tits (*Parus ater*) or great tits (*Parus major*). Both are insectivorous. It is hardly likely they would be lesser spotted woodpeckers. These are too rare in Ireland, and besides they frequent tall trees and not shrubs.—F. B.

— THE annual meeting of the members of the ANCIENT SOCIETY OF YORK FLORISTS was held recently in the White Swan, Goodramgate, Mr. G. Lamb presiding. There was a good attendance. Mr. Lazenby (Secretary) read the annual report, which stated that the Committee had again the gratification to announce very satisfactory results of the past year's operations, there being a considerable increase in the number of members, the receipts from this source being augmented by about £22. Despite the increase of the expenditure, there remained a balance at the bankers of over £100. The minor shows had been well sustained and largely patronised by the public. The Chrysanthemum Show was a distinct advance in the quality of specimen plants and cut flowers on any preceding show, more especially the plants. The financial statement showed that the balance from 1888 was £122 18s. Donations and subscriptions amounted to £136 17s. 6d., the receipts at the Chrysanthemum Show £175 7s. 1d., and other receipts to £44 13s. 2d., giving a total of £479 15s. 9d. The chief items in the expenditure were £142 3s. 9d. for the Chrysanthemum Show, £46 6s. for minor shows, £24 4s. to the Gas Company, £20 16s. 8d. to the *York Herald*, £28 10s. for bands, and salaries £20. A balance of £111 14s. 5d. was left in hand. Mr. G. F. Pilmoor moved the adoption of the report, which was seconded by Mr. W. Robinson, and, after some discussion on details, the proposition was agreed to.

SUTTONS' BOUQUET BROCCOLI.

AT the end of last May Messrs. Sutton & Sons of Reading sent us a plant of this Broccoli, at once remarkable by its size and productiveness. It completely filled a hamper upwards of 3 feet in circumference. The plant was bearing a central head 9 inches in diameter, with a number of branches from the main stem just above the ground, with close white heads ranging from 4 to 6 inches across. There is not the slightest exaggeration in the character of the plant we inspected, in the illustration which we are permitted to use from the catalogue of the firm. It is a true branching Broccoli, and it will be interesting to hear that it retains its distinctiveness in various soils and districts.

GARDENERS' ORPHAN FUND.

KINDLY give me a little space to record some generous and most successful efforts which have recently been made in aid of our gardening charities. The promoters and conductors of such undertakings deserve our warmest and most sincere thanks, not only for the time and trouble they have devoted to the work, but for the splendid example they have set others to go and do likewise.

At Workop last month the gardeners of that ducal district, headed by our good friends Mr. Henderson of Thoresby (Secretary), and Mr. Gleeson of Clumber, organised a concert, which, being patronised by the

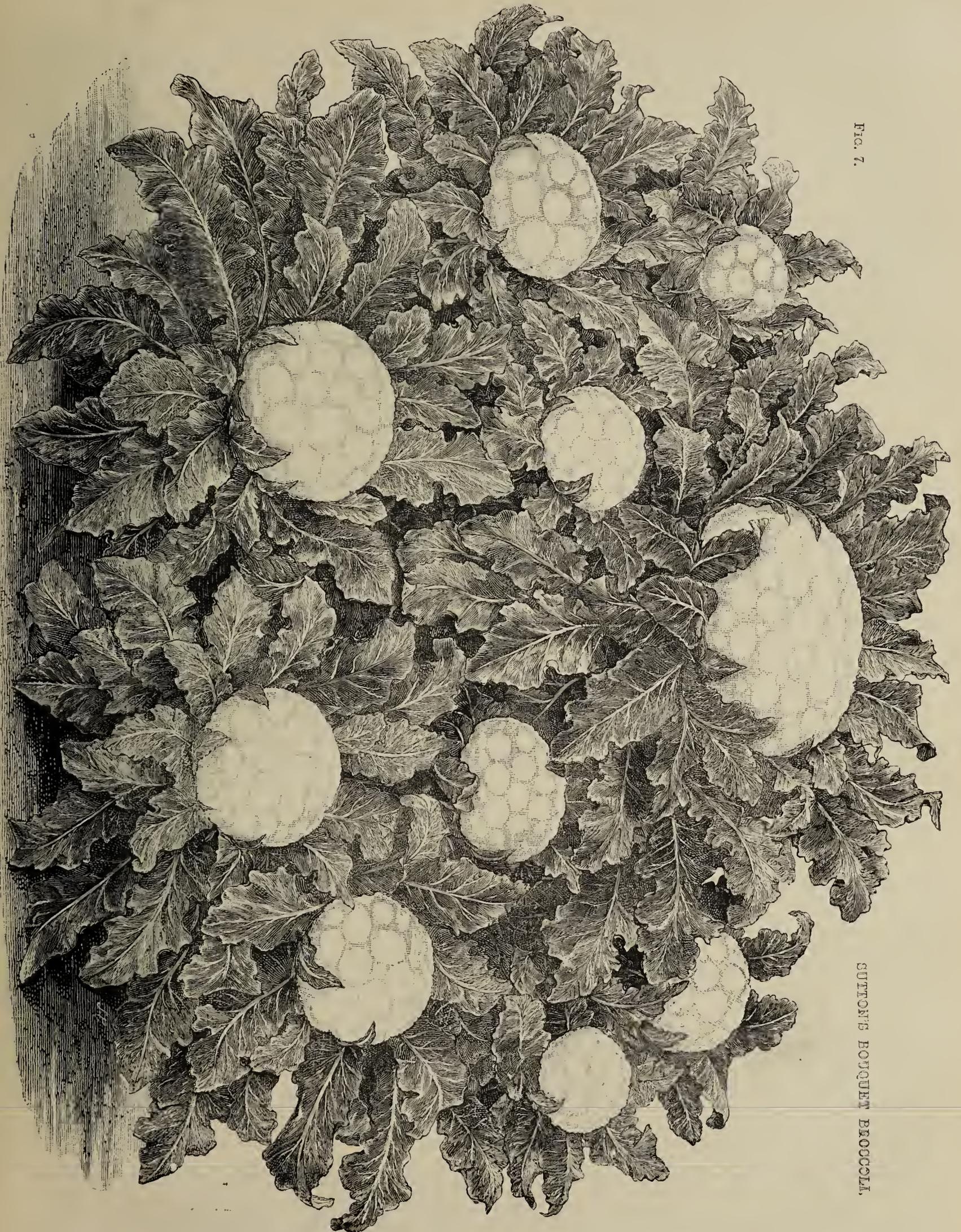


FIG. 7.

SUTTON'S BOUQUET BROCCOLI.

élite of the place, secured as a result a net profit of £56 4s. for the benefit of the Gardeners' Orphan Fund. In accordance with the rules of the Fund the following members of the Committee have elected to become life subscribers:—Mr. Egglestone, Firbeck Hall Gardens, Rotherham; Mr. Gleeson, Clumber Gardens, Worksop; Mr. Horton, Welbeck Gardens, Worksop; Mr. Henderson, Thoresby, Ollerton, Notts; Mr. Jefferson, gardener, Carlton House, Worksop; Mr. Mallender, Hodsock Priory, Worksop; Mr. Sutton, Worksop Manor Gardens, Worksop; and Mr. Woods, Osberton Gardens, Worksop.

At Reigate the Committee of the Reigate and District Chrysanthemum Society (Mr. J. Brown, Great Doods, Reigate, Secretary) decided to hold their Show last autumn for the benefit of the two great gardeners' charities—the Gardeners' Royal Benevolent Institution and the Gardeners' Orphan Fund. Their efforts have been so successful as to secure a net profit of £100, and with grateful thanks I have to acknowledge the receipt of £50 sent in aid of the Gardeners' Orphan Fund. The following members of the Committee have elected to become life subscribers:—Mr. James Brown, gardener to Mrs. Waterlow, Great Doods, Reigate; Mr. Thomas Budgen, gardener to Miss Baker, Holmfels, Reigate; Mr. Alfred Alphie, gardener to J. Clutton, Esq., South Park, Reigate; Mr. William Hamilton, gardener to Mrs. Grice, Beechwood, Reigate; Mr. James Hoad, gardener to G. Simpson, Esq., Wray Park, Reigate; Mr. Fred. Parfitt, gardener to E. Horne, Esq., Park House, Reigate; Mr. Wm. Peters, gardener to W. Finch, Esq., Danecroft, Reigate; Mr. James, Port, gardener to J. C. Saunders, Esq., Shagbrook, Reigate; Mr. C. J. Salter, gardener to T. B. Heywood, Esq., Woodbatch Lodge, Reigate; and Mr. Robert V. Smith, gardener to A. G. Taylor, Esq., The Margery, Reigate.—A. F. BARRON, *Hon. Sec. Gardeners' Orphan Fund.*

SELECT HARDY PLANTS.

HEPATICAS ANGULOSA.

UNDOUBTEDLY the most charming of the Hepaticas. The flowers when well grown are fully twice the size of any other, and the plant is readily managed in most gardens. All are hardy, but they should always be planted in sheltered warm partially shaded nooks to see them to advantage. Another condition which they cannot endure is a smoky atmosphere; they do not die, but they linger on, living examples, as it were, of their own misery, and in winter not a vestige of leaf is apparent. In a deep rich moist sandy loam the Hepaticas are perfectly happy, and they usually carry their foliage throughout the winter. Some of those positions which suit them well are easily obtainable in the majority of gardens—such, for example, as the margin of Rhododendron beds, or in company with dwarf shrubs, like the Andromedas and Azalea mollis. *H. angulosa* is very distinct from the rest of this group in several important characteristics. Some of these are its five-lobed toothed leaves, which in a young state are inclined to be downy, also in its handsome sky-blue flowers and somewhat creeping rootstock, all the forms of *triloba* having compact erect crowns. I have now a solitary flower of this species which has evidently broken away from the rest for some reason or other. It is worthy of note, too, that while we find almost endless variations in the seedling forms of *triloba* both in flower and foliage, this species has not, so far as I am aware, differed in either of these respects, though I doubt not a few really distinct shades would be gladly welcomed by all lovers of hardy plants, particularly if possessed of the size and vigour of the plant under notice.

IRIS STYLOSA.

Another instance of a hardy and free-growing perennial, which requires slight protection simply because its lovely flowers come in the depth of the winter season. They are rarely noticed till ready to expand, nestling among the deep green and elegant tufts of leaves. In planting, it would be well to place it so that it may be given the protection of a handlight or frame at flowering time, always admitting plenty of air by placing the light on pots. In rich sandy loam it grows freely, and some make compact tufts; and those who have grown it should endeavour to find room for one of the most lovely of the entire family. The flowers are slightly fragrant, of an exquisite sky-blue, and the plant is adapted for flowering in a cold house in pots where its beauty may be seen to greater advantage than in the open ground at this season of the year. Happily, it is one of the cheapest Irises, a decided recommendation to all who require something of exceptional merit.

TRILLIUMS.

All who are desirous of enjoying the charms which these present in the spring months should secure strong roots and plant them as soon as a favourable opportunity offers. It is an undeniable fact that the majority of early spring flowering plants are better for being planted in the early autumn, and these Trilliums are by no means exceptions to the rule. Their requirements are simple; peat, leaf soil well decayed, and sandy loam in about equal parts suit them admirably, to which a somewhat liberal addition of well decayed stable manure may be given with advantage. Above all things they must be given a cool, moist spot, such, for example, as may be found in positions assigned to hardy Ferns, from which flowering plants invariably are excluded—a state of things somewhat difficult to understand, especially as these places often furnish the conditions in which so many of our choice hardy plants delight, and these Trilliums in the moister parts of the hardy fernery would be suited exactly, and equally so the Hepaticas, *Helleborus niger*, Wood Anemones, and others. The most effective of the Trilliums are the

varieties of *grandiflorum*, notably *maximum* and *præcox*. Apart from these are *erectum*, also called *atropurpureum*, and the dainty *erythrocarpum*, which latter has white flowers with rose spots at the base of the petals internally, which render it very conspicuous. There are several other species, but these are the most worthy, and all require similar treatment.

SISYRINCHIUM GRANDIFLORUM.

One of the daintiest of all spring flowers, charming in large tufts in consequence of the numbers of flowering stems which issue from amidst its grassy leaves. It is singularly effective when in flower, and in spite of its apparently delicate and fragile nature is hardy, and far more enduring than may be at first sight imagined. When fully established it attains a foot high, and its pendant silky purple flowers are very pleasing. A deep bed of sandy loam will grow it to perfection, and if given a spot sheltered from high cutting wind so much the better. It has a most delightful companion in the pure white variety, which happily is equally free flowering and hardy, and both will be better suited on the rockery in sheltered spots than among the general collection in the border.

BRAMBLES.

HAVING seen *Rubus laciniatus* fruiting most abundantly for many years at Worksop Manor under the care of Mr. Sutton, and for several years at Oakbrook under Mr. Woodcock, as mentioned in the editorial footnote on page 547, and having had a row of it under my own charge at Elford Hall, where the fruit is highly esteemed, and required as regularly whilst in season as Raspberries, Strawberries, and Currants in their season, I think this particular *Rubus* is fully entitled to all the praise bestowed upon it. One of my predecessors—either Mr. Fairweather or the late Mr. Cunningham—planted it at Elford, and it has always justified all that has been said in its favour, and that being so, I never disturbed that row, although it occupied a position on a valuable south border, where, being only a Bramble, it looked out of place; but this position, I think, had something to do with its fruitfulness. The long strong canes annually produced were well ripened. I understand that the row is now removed to another part of the garden.—J. UDALE.

I FEAR I cannot give any reliable authority for stating my belief that the Parsley-leaved Bramble (*Rubus laciniatus*) was an English raised variety. I have a vague idea that I was once told it originated in the nursery of Messrs. Fisher, Holmes & Co., Handsworth, Sheffield, but I cannot recall to mind by whom. All I know is that I have heard several times it was an English and not an American variety, and probably the distinctive character of the plant and its adaptability to our climate, as compared with other American Brambles, helped me in the belief I expressed that it was of English origin. If my note be the means of eliciting something definite I shall be glad I opened out the question, for it may as well be settled now as hereafter.—F. BOYES.

WITH me the Parsley-leaved Bramble bears an abundance of large, handsome, juicy fruits, and is a very rampant grower. I have found that however carefully it is planted and treated afterwards that it stands still for two years, and this may account for the difference of opinion as to the merits of cultivated Blackberries. We train them over an arch of curved poles, and pruning and training consists of cutting out the old wood that has just fruited and tying the young in its place. This is a very unpleasant task, as the branches are a mass of thorns and get entangled together, and also in the assailant's clothes. If there was much of it to be done a leather apron would be a desirable addition to the gardener's wardrobe. However, I think it is well worth growing until a less shiny and otherwise equally good variety takes its place. The fruit makes a very fine preserve.—WALTER KRUSE.

WANTED, A PUBLIC HALL FOR HORTICULTURE.

SURELY it is inspiring to everyone when they see the exhibits of their countrymen standing boldly up and distancing foreign competitors. It should be known that every variety of fruit, flowers, and vegetables of worth that can be found upon the earth is brought to England. In every instance we grow them better than where they are indigenous. Of course the varieties are numerous, and it becomes a national necessity to weed out the inferior and to record the superior, and in this the Royal Horticultural Society has done incalculable good.

It is remarkable (and may be compared to the moral work and generosity of some, which is unrecognised during life) that scarcely any one knows the Society's worth, and those that do fail to promulgate the fact. The English by sheer intelligence have considerably improved nearly every production for the sustenance and happiness of the public. These have gone forth to every part of the world, and if it were possible to sum up the good it would be found that horticulture has done more to benefit the human race and make England eminent than any other profession, and, although much has been done to comfort and strengthen the body and cheer the heart of man, there is an endless amount still to do.

His late Royal Highness Prince Albert certainly made sure that he had secured a noble home for the Society, but it is at this moment, from no fault of theirs, without a floor or roof to call its own, yet now even, in lodgings as it were, the Society is leading horticulture and doing enormous good—agriculture owes them a heavy debt of gratitude. When we read of a patriotic lady in Philadelphia, evidently an admirer,

and anxious to forward horticulture in America, bequeathing £40,000 wherewith to build and maintain a hall of horticulture in that city, we feel it is retrogression on the part of the British in not possessing one long since to carry on one of the greatest sciences of the nation. There are many amongst our wealthy who in their time have enjoyed an immense amount of happiness, luxury, and contentment from their gardens, who we believe will follow the noble example of this estimable and generous American lady, and immortalise their name by securing and presenting the freehold of a suitable site for that most necessary institution—to hold their meetings, shelter their library and the Council who so nobly carry on the work.

There are plenty of central sites which would answer admirably, and as soon as the freehold is secured we are ready to subscribe £25, and we are quite sure the Secretary, Rev. W. Wilks, would be delighted to hear of others doing likewise.

We hope to live to see the day when we have a hall worthy of our great nation, and that the Committee of the National Chrysanthemum Society, the members of which number well nigh 1000, and whose work and exhibitions are of great importance, and stand pre-eminently with that flower, may be invited, and see their way also to hold their shows and meetings in this building, and all special Societies, such as Roses, Dahlias, Auriculas, Carnations, &c., also the Gardeners' Benevolent Society, Gardeners' Orphan Fund, and Gardeners' Provident Society, in fact all societies pertaining to horticulture, have the same privilege, and thus avoid expensive hotels and other public resorts. This building we picture in our minds, and hope some day to see in reality.—HENRY CANNELL & SONS.

[We have received another communication from Messrs. Cannell on this subject.]



THE NATIONAL CHRYSANTHEMUM SOCIETY.

THE midwinter Show was held on Wednesday and Thursday January 8th and 9th, in the Royal Aquarium, Westminster, and notwithstanding the exceptionally unfavourable character of the season for late Chrysanthemums the competition was keener than usual, and the quality of the exhibits also better. Cut Chrysanthemum blooms were in the majority of cases fresh and bright, Primulas and Cyclamens were admirable, and the groups of miscellaneous plants all that could be expected at this time of year. There can be no question about the usefulness of Chrysanthemum flowers at Christmas and in the early part of January, because flowers of almost every kind are valuable then, and greater quantities of them, especially of the white and yellow varieties, will be found in the London markets than of any others. Still it is strange that so few really late varieties are obtained, though if Mr. Kipling's system is pursued they are not wanted, as any of the ordinary varieties can be had in good condition throughout the winter. Some of the most successful exhibitors in the Chrysanthemum classes were Mr. R. Owen, Maidenhead; Mr. Kipling, gardener to the Earl of Lytton, Knebworth; Mr. G. Bolas, gardener to H. Chandos Pole, Esq., Hopton Hall, Wirksworth; Mr. J. Brown, gardener to Mrs. Waterlow, Great Doods, Reigate; and Mr. Taylor, gardener to Sir John Lubbock, Bart., M.P., High Elms, Farnborough.

In the Primula classes Messrs. Carter, Newell, Mursell, and Dr. Phillips were the prizetakers, while with Cyclamens Messrs. W. Clarke, May, Phillips, White, and Carter were successful.

The Floral Committee held a meeting on January 8th, at 12.30 P.M., Mr. R. Ballantine in the chair, the following members being present:—Messrs. E. Sanderson, H. Cannell, G. Gordon, C. Gibson, L. Castle, J. Mardlin, W. Holmes, and R. Dean. Very few novelties were submitted, but Mr. E. Beckett, Aldenham House Gardens, Elstree, showed blooms of a Japanese Chrysanthemum named Mrs. H. Waterer, the blooms of a rather dull white, large, with broad florets. Mr. R. Owen also sent a Japanese variety named Kioto, bright yellow, like Mr. H. Cannell; but as these did not appear to be in their best condition the Committee requested the exhibitors to show them again. Several new Primulas were examined, and a certificate was awarded for a single variety named Progress (Messrs. H. Cannell & Sons), the flowers well formed, extremely stout in texture, and a rich crimson colour.

A conference was held in the Board-room of the Royal Aquarium at 6 P.M. the same evening, Mr. R. Ballantine in the chair, when there was a capital attendance. Mr. Kipling read the following paper, which induced a very interesting discussion, followed by a hearty vote of thanks to the reader:—

ARE CHRYSANTHEMUMS WANTED AT MIDWINTER?

THE question I have to submit for your consideration, Are Chrysanthemums wanted at midwinter? might well be answered by asking another, and correlative question, Are flowers wanted at midwinter? But it will probably be advisable to set forth the reasons why I consider that the answer should be in the affirmative. There are few people, I imagine, who have a taste for flowers, and thoroughly appreciate them

that would deny the necessity for having them in abundance at a season of the year which includes the festivities of Christmas and the New Year. At that season, as so well known, there is the greatest demand for flowers, and it is also a matter of common knowledge that they are then very scarce and most difficult to be had. This being the case, flowers are at midwinter appreciated as flowers irrespective of their names. Consequently Chrysanthemums, if they can be had at that season, are not likely to prove less welcome, or to be less appreciated by the general flower lover than the flowers of any other group of plants that could be mentioned. This is looking at the question simply from a common sense point of view. We might, however, look at it from another, and sentimental standpoint that, perhaps, from which the true lover and enthusiast of the Chrysanthemum would view the matter.

Most individuals have a taste—sentimental if you will—or hobby for pursuing some particular object, and as taste is not arbitrary, they have a perfect right to follow the bent of their tastes and inclinations, so long as they do not interfere with other people. Well, the Chrysanthemum enthusiast has a taste and hobby for the cultivation of this particular flower in its many phases, and I have no doubt, were he asked the question, Are Chrysanthemums wanted at midwinter? he would promptly reply Yes, and add, perhaps, at any other time that they can be had. He would, I venture to say, be perfectly justified in his answer and opinion, notwithstanding what a few individuals may say about Chrysaanthemums not being wanted at this season or that season.

For my part, I can say that their flowers are appreciated at all seasons of the year, even to all the year round, which I have in my practice more than abundantly proved to be possible, but, perhaps, not generally quite desirable. However, at no season of the year do we find them so acceptable, so useful, and to fill so great a void as from the beginning of December to the end of January, or even later, a period of the year when there is a great dearth of other flowers, and those available are mostly forced, which are produced at considerable cost and last but a little time in good condition in a cut state.

It is here, then, that the usefulness of the midwinter Chrysanthemums is clearly apparent. They step into the breach as it were, and supply a felt want, and I claim consideration for them on grounds other than those of a sentimental character. They indeed fill a unique and useful position amongst winter-blooming plants, and from them a general demand for flowers can be met and supplied. The midwinter Chrysanthemums have another, and not the least, claim to our attention. Their cultivation, as compared with those grown for autumn decoration and for exhibition, is very simple, very inexpensive, and require from the grower only a tithe of the labour and watchful care the others demand from him. The cuttings are struck late, are a very little time on hand before they can be finally potted off, and the pots plunged to their rims in some cool half-shaded spot for the summer, and where in the hottest and driest of weather they require water only once a day, and on dull days none whatever. As ordinary decorative bloom only is the object sought there is no anxiety about the time the buds shall be taken, no thinning out of buds and shoots, and no feeding up with liquid manures as in the production of a few fat blooms. They will stand out of doors to the latest date possible without being injured even by a degree or two of frost, and when housed the accommodation of the coolest structures meets their requirements. Indeed, the Peach houses or the latest vineries—where low temperatures are necessary for resting the Vines and Peach trees are the best places for housing and retarding late Chrysanthemums up to the time it is necessary to push them into bloom. When this period arrives a little warmth becomes necessary, and to this they respond gratefully. Lastly, I know of no class of plants that give so large a return for the labour bestowed, the space occupied while under glass, and the little fuel needed in their production as these midwinter Chrysanthemums.

Not the least point in the favour of the late-blooming Chrysanthemums is the long keeping qualities of the blooms, and their capability of enduring close packing and long journeys. With ordinary care in packing they will, on reaching their destination, come out of the box as bright and fresh as could possibly be desired. Of course, the long keeping quality of the blooms is to a certain degree common to all the sections, and under all phases of their cultivation. But I find this quality in the flowers greatly emphasised in the midwinter blooms, and this, no doubt, is due to the plants having been grown under a natural system and under the hardest conditions possible, thus giving to the flowers a toughness and greater substance of petal. Damping of the blooms is hardly known among them, and we are therefore saved from the annoying and tantalising heartaches experienced by the exhibition bloom grower at seeing his brightest and fondest hopes, which are centred in his biggest and fattest of blooms, crumbling away day by day. With reference to the long keeping of blooms, I may mention that my noble employer writes me to send her nothing but Chrysanthemums, as no other flowers come to hand in so fresh and bright a condition or last so long. They invariably retain their freshness from a fortnight to three weeks after being sent, and I would like to ask what other cut flowers, except the Christmas Rose, will endure a two-days confinement and transit across the Channel, and yet come out fresh and bright and last for a fortnight or longer?

So much for the usefulness, and I might say the importance of the midwinter Chrysanthemums. A few remarks on the varieties that I have found to be the best to grow for the production of flowers at that season may not be uninteresting. There are three points or qualities

essential in a midwinter or late Chrysanthemum. The first point is its lateness to bloom, which should be natural to and inherent in the variety. Secondly, it should have a free habit of growth, and be a very free bloomer, as labour would be thrown away on a variety that would not yield liberal and adequate returns in the shape of flowers. Thirdly, the colour of the flower should show up well under both natural and artificial lights. Most of our floral decorations at this season of the year have to be seen under artificial light, colour in the flowers is therefore of some importance, and those colours which come out well under that light are the most valuable. Whites, reds of different shades, and yellows, including deep bronzy oranges, are the best colours, while purples, lilacs, and their several shades are the worst for the purpose.

The varieties which I have found to fulfil the several conditions therein enumerated are *Etoile du Midi*, Kämpfer, M. C. Hubert, Meg Merrilies and its sports *Ralph Brocklebank* and *Countess of Lytton*, *Ceres*, Mrs. C. Carey, *Ethel*, *Yellow Ethel*, *Thunberg*, *Boule d'Or*, *Moonlight*, *Gloriosum*, Mrs. H. Cannell, and *Golden Gem* among the Japs; *Boule de Neige*, *Snowdrop*, *Madame Sentir*, and one or two others among the reflexed and Pompon sections. In the section of the single varieties will be found some that are admirable for the supply of flowers at midwinter work. Hitherto this section has not made much advance in general favour, possibly because the Japanese varieties have been more attractive and have elbowed them out of the way at a time when blooms are so very plentiful early in the season. I believe, however, the single Chrysanthemum's most useful and proper position will be found as a midwinter flower. Their free blooming and the long-lasting qualities of the flowers are not surpassed by any others, and they have in a cut state, and when arranged in vases, an elegance and grace all their own, and they can be looked upon at the winter season, not as Chrysanthemums, but as various coloured *Marguerites*. Some years since I bought the set of twelve, the first, I believe, Mr. Cannell sent out, and each year has proved more and more their value for midwinter blooming. This season they did not commence to bloom till the beginning of December, and they have been a perfect mass of flower up to the present date. The best varieties of the twelve are Mrs. Langtry, pinkish white, very free; *Magenta King*, bright purplish rose; *Canariensis*, terra cotta, very elegant; *Brunette*, brick red and orange, very free and useful in a cut state; *Ellen Terry*, Mrs. Killock, *Monte Carlo*, and *Gus Harris*; the two latter are very compact in growth and make excellent pot specimens.

A question was next submitted to the meeting for discussion—namely, "In what way can the interest and attractions of Chrysanthemums be increased." This led to the expression of numerous opinions, but the majority seemed to be in favour of extending the classes for plants, groups, and floral decorations. Groups for effect only were also advocated, and some were in favour of classes for naturally grown blooms, shown with their stems and foliage. A vote of thanks to the Chairman concluded the proceedings.

CHRYSANTHEMUM NOTES AND REMEMBRANCES

PAST AND PRESENT.

THE year just closed and the present year will henceforth be notable periods, as being the time when Englishmen decided to celebrate the centenary of the introduction of the Chrysanthemum into England. But whether or not it is exactly one hundred years since this popular favourite became established amongst us is, I think, a point on which opinions may differ. Loudon, in his "Encyclopedia of Gardening," published in 1824, gives the date of its introduction 1764; the "Cottage Gardeners' Dictionary" also fixes the same year. Mr. Joseph Sabine, in his first paper in the Transactions of the Royal Horticultural Society, published in 1822, infers that it was known in England before, and quotes several authorities on the subject; but he adds, "but the credit of their first reappearance, as far as their present existence is concerned, belongs to M. Blancard, a merchant of Marseilles, who in 1789 imported three different plants from China." He further tells us that one of these, the purple, was transmitted to this country from France in 1790, hence I suppose it is why it has been thought proper to celebrate its centenary in two separate years. Mr. Joseph Sabine's writings on the Chrysanthemum has formed the basis of history for all subsequent authorities. Even Mr. A. H. Haworth, whose classification of forty-eight varieties, published in 1833, refers almost every variety to Mr. Sabine's papers in the Horticultural Transactions. Writers of to-day refer to and repeat his work for the interest and benefit of the present generation, therefore we that admire the flower of to-day should spare a thought of gratitude to him who nearly seventy years ago laboured so assiduously, attentively, and minutely for the public good. Who can tell but from the exertions of the Royal Horticultural Society, so ably assisted by the enthusiasm of their Secretary for this favourite flower, whether we to-day should have been able to have had and enjoy the magnificent displays that are now to be seen in almost every hamlet of Great Britain?

Both amateur and professional gardeners soon learnt its beauty and usefulness to brighten the waning days of departing autumn, which gave an impetus to its cultivation. Several nurserymen and a few private growers began to grow collections, and as new varieties could be procured added them, but none made such a study of them or grew so many varieties as Mr. John Salter. Year after year he laboured on introducing many new and excellent seedlings, some of which are now amongst the best of the present age, especially in the incurved and reflexed sections. Several societies were started for the encouragement and

further development of this flower; although not like those of the present day, they were very pleasing and attractive, many of them having done much to stimulate improvement both in plant growing and cut flowers. I well remember my first impressions on going to the Stoke Newington Show in 1869, and seeing the neat and prim boxes of blooms staged there. Although I became acquainted with the border flowers ten years before that time, and had grown a display in pots five years previously, I had not seen an exhibition. Some of these early societies encouraged pot culture, some going in for mere size of plant, while others mainly displayed medium-sized plants with flowers of extraordinary quality. Brixton was notable for the latter. At Southampton and Birmingham much larger plants were staged. I think it was in 1878 or 1879 I saw some magnificent plants at Southampton 5 feet through. There were at this time several good provincial exhibitions throughout the country, but nothing like the number of the present day.

Up to about the year 1880, generally speaking, the Chrysanthemum from an exhibitor's standpoint was but indifferently grown in private gardens. Some few places around London and large provincial towns where exhibitions had given stimulus to their culture they were well grown; but the Japanese was not so numerous as now, or as well known, and the grouping system which has been one of the most encouraging classes for home displays that ever could have been conceived, was scarcely adopted at any exhibition. Trained plants and cut flowers were the principal features. Formerly no groups of table plants, *Primulas*, *Cyclamens*, *Solanums*, baskets and epergnes of grasses and autumn leaves were thought of. The timely introduction of all these small features lends beauty and usefulness, while the Japanese blooms add brightness of colouring and diversity of shape almost inconceivable. Although the Japanese had been known from 1861 or 1862 they can scarcely be said to be in fair cultivation for at least ten years after. I cannot tell to whom the credit is due for bringing them before the masses, but I think none more so than to the late Messrs. Jackson and Sons of Kingston and Mr. F. A. Davis of Surbiton, who was for several years the President of the Kingston Chrysanthemum Society. Mr. Davis bought every new variety as they came out, and him and Mr. Douglas I well remember exhibited several times in this class at the Royal Horticultural Society, when that Society offered prizes for them. Mr. Davis has always been a great lover and patron of the Chrysanthemum, and has never once refrained from competing in the challenge vase class since the formation of the Kingston Society some fourteen or fifteen years since. Whatever may in the future be the outcome of the Kingston Show, it must be admitted by all exhibitors who have had the pleasure of visiting its exhibitions that it has sown the seed of usefulness to younger societies by the introduction of several features now common to shows, but not generally known before it was adopted there. The first and most important feature introduced here was when substantial prizes were offered for groups of Chrysanthemums in a given space. Although these groups were a little tall at first, they subsequently became dwarfed through the happy idea of Mr. Orchard. The attractive feature of the groups there led to their adoption in almost every exhibition, and I have admired this season in small out-of-the-way provincial towns splendidly dwarf and pleasing groups; those staged at Halstead in Essex were magnificent. I also saw some good ones at Sudbury, Suffolk, and Newport, Isle of Wight, and at home what better and more attractive feature was there either at the Crystal Palace or the Aquarium than Messrs. Laing & Sons', also the Blackheath groups. While this feature has necessarily improved at the exhibition tent they have equally improved the plants for the home display, the dwarfing system has become more generally understood, and flowers and foliage now supply the place of hideous stakes and lanky stems of formerly. The display of table and other plants now so often found running in a line down the centre of each table between two rows of boxes of cut flowers I think originated at Kingston, and perhaps for these and several other smaller minutiae the thanks of all is due to Mr. Puttock, a man of vast experience in all horticultural arrangements.

The offering of the several valuable challenge prizes was undoubtedly the making of Kingston Show, but while it added interest and fame to Kingston it has done much to stimulate the growth of the Chrysanthemum throughout the length and breadth of the land. The Japanese varieties were known, grown, and exhibited at Kingston before anywhere else. They were included in the class for the challenge vase, and outside growers had to grow them to compete. A friendly rivalry existed between the growers of Kingston and Wimbledon and the growers of Liverpool. The Liverpool growers, to their spirit, courage, and merit, he it said, they came and won. I think I am right in saying that before the Kingston challenge vase was offered scarcely a Japanese flower was grown around Liverpool. I well remember Mr. Molyneux's admiration of *Bouquet Fait*, M. Ardene, and other Japanese blooms staged in the all-England challenge prize stand at Southampton in 1879. Also I remember his telling me that he would beat me the following year, and so he did; but Kingston secured him through it, and some magnificent blooms. What a change has come over the Japanese section since then. Madame Bertie Rendatler was a good flower in 1879, but what a contrast between that and *Etoile de Lyon* in 1889.

The incurved varieties have not varied as much. The fine old Queen family is very old, and holds its own against all. What fine ones in days of yore Mr. Shrimpton, gardener at Roehampton, used to grow. Excepting sports I think we have only had one new one for years—viz., *Jeanne d'Arc*. Sports are now becoming plentiful. Grand additions

we have in Miss Haggas and Violet Tomlin. No person need be hard up for a box of twenty-four distinct varieties without falling back on small sorts. I do sincerely hope that all societies, no matter how large or small, will in future offer prizes only for distinct varieties. To ask for duplicates is a weakening feature in any stand or exhibition. Every interested person wishes to see a complete collection distinct. When duplicates are allowed very much of the interest and purposes of the exhibition is shorn. We have plenty of varieties and plenty of good exhibitors that are ready to exhibit if framers of schedules will only ask for six, twelve, eighteen, twenty-four, or forty-eight distinct varieties, as the case may be.—J. W. M.

CHRYSANTHEMUM EXHIBITIONS—A PLEA FOR SMALL GROWERS.

Now that thoughts are directed to the next year's shows, I have thought it to be well to advance the claims of the small grower, whose chances are becoming in some districts, from the increasing competition, almost obscure. The ambition of the small grower is, in many instances, quite as keen as that of the large cultivator, and certainly deserves notice. I am aware that at most Chrysanthemum shows there are small classes provided, and there are others where there is no such provision, and where it is so the smaller grower is not absolutely catered for. In this I am speaking from actual experience, for I had myself in small classes to meet men provided with much greater conveniences than I have. I do not wish in the least to complain, as the competition was fully in accordance with the stipulations of the schedules, but I am sure if a class could be set apart for those who kept one, or at most two gardeners, it would become as popular as those of larger numbers, and tend to increase patronage and enthusiasm. Fancy prizes, though appreciated by those fortunate enough to secure them, are, however, not required in meeting the claims here set forth, and societies not having framed their schedules for the next Chrysanthemum contests would confer a favour by such a provision on a section now in a minority. In giving expression to these views I am not prompted by selfish motives, but the fact of so many large establishments taking foremost places, the lesser growers' chances are thereby becoming extinct.—SMALL GROWER.

CHRYSANTHEMUM PRINCESS BLANCHE.

A SLIP of the pen on page 31 needs correction. The late variety which Mr. Stevens has found so useful from before Christmas to the present time is not named "Lady" but Princess Blanche. It was certificated two or three years ago at the January Show of the National Chrysanthemum Society, but in 1888 Mr. Stevens' plants were spoiled by the October frost, so nothing was heard of the Princess at Putney that year. He intends growing nine hundred plants of the variety this year. The plants now just over were never topped, but allowed to break twice naturally, then the terminal buds formed, and one bloom was retained on each shoot. The plants resemble small free half-standards from 2 feet to 2½ feet high.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 14TH.

THE first meeting of the Committees for the year 1890 was held in the Drill Hall, James Street, Victoria Street, on Tuesday last, the time for the commencement of business being fixed for 12 noon. Prior to that the President (Sir Trevor Lawrence, Bart., M.P.) addressed the Committees in a short speech, thanking them for the services they rendered, which he stated were highly appreciated both by the Council and the Fellows generally. He was sure that they included in their several Committees the best authorities on the respective subjects that could be obtained, and the utmost confidence was felt in their decisions.

The number of exhibits was not large, but the Orchids formed a special and important feature, particularly the hybrid Dendrobiums from Burford Lodge, which were much admired. The hybrid Nepenthes from Chelsea and the Ferns from Edmonton also constituted interesting additions to the display. In the afternoon the Rev. W. Wilks read a practical and suggestive paper on "Winter Gardening," a number of Fellows assembling to hear his discourse.

FRUIT COMMITTEE.—At this early season of the year only a limited number of exhibits are expected. The most interesting, perhaps, and certainly the most unusual, was a Papaw Tree from Chatsworth bearing green and ripe fruit. There was a good attendance of members, including John Lee, Esq., in the chair, with Dr. Hogg, and Messrs. P. Crowley, P. Barr, J. Cheal, W. Denning, G. Norman, A. H. Pearson, G. W. Cummins, G. Cliffe, C. Ross, A. Watkins, W. Warren, G. Bunyard, H. Balderson, F. Q. Lane, W. Wildsmith, J. T. Saltmarsh, R. D. Blackmore, W. Coleman, James Hudson, J. Wright, and James Smith.

Mr. H. Morris, Glanafw Gardens, Taibach, South Wales, sent a very good Pine Apple, for which a vote of thanks was accorded. Mr. G. W. Cummins again sent a dish of the Apple named Remborough, in the garden of A. H. Smee, Esq. It resembles an enlarged form of the Golden Winter Pearmain, commonly called King of the Pippins, and though considered useful, no award was granted. Mr. Myles, Appley Towers, Ryde, sent a bunch of the Appley Towers Black Grape that was certificated in the autumn, also another seedling with large berries resembling the Morocco, a Grape of promise, which the Committee desired to see in March. Parents, Gros Colman and Alicante. Of the same parentage was a round white Grape resembling in appearance Mrs. Pearson, and of agreeable flavour. It was passed with the expression of a hope that it would be sent again next year. Mr. Miller,

gardener to Lord Folcy, sent from Ruxley Lodge, Esher, large boxes of Mushrooms from indoor and outdoor beds, and a vote of thanks was unanimously awarded; a cultural commendation having been awarded to Mr. Miller at a previous meeting for similar examples. He seems to be an expert in Mushroom culture. Mr. A. Dean sent specimens of Spanish Onions, both home-grown and imported, the latter 18 inches in circumference, the former smaller, but not regarded as less useful. A vote of thanks was recorded.

Mr. O. Thomas sent from Chatsworth a fruiting plant of the Papaw in fruit. The plant was in a pot. The character of the plant somewhat resembles that of a broad leaved Aralia. The stem was thick, and leafless to the height of about 3 feet, then came the fruits, which in shape and size were not unlike that of the Tree Tomato figured on page 15. They clustered closely round the stem to the length of a foot, some yellow, but most green, and had an ornamental appearance. The large leaves appeared above the fruit, but were withering. The plant was raised from seed last year. Whether the stem was cut and inserted in the pot for convenience of transit we did not ascertain. Dr. Hogg, in his "Vegetable Kingdom," says:—"The Papaw Tree (*Carica papaya*) is cultivated for the sake of its fruit, which is eaten when cooked, and has a pleasant sweetish taste. When young, it is generally used for sauce; and when boiled and mixed with lime juice, it is used as a substitute for Apples, to which in flavour it has a resemblance. The juice of the unripe fruit is a powerful and efficient vermifuge, and the powder of the seeds answers the same purpose. The principal constituent of the juice is fibrine, a principle hitherto supposed to belong to the animal kingdom and to the fungi. Water impregnated with this juice renders all sorts of meat steeped in it tender, and even the flesh of old hogs and old poultry fed on the leaves and fruit is thus made perfectly tender, but must be eaten as soon as killed, otherwise it will run to putridity. Even the vapour of the tree answers the same purpose, and hence people hang joints of meat, fowls, &c., in the upper part of the tree to prepare them for table." Doubts were, however, expressed as to whether the specimen exhibited was the true Papaw, or another species of the genus *Carica*. The Chatsworth tree was scarcely large enough for "hanging joints and fowls in," but all the same, the Committee were glad to see it, and a cordial vote of thanks to Mr. Thomas was recorded, and a cultural commendation recommended.

Several heads of Broccoli were brought from the trial collection of Chiswick, and three marks of merit were given to Early Penzance; the plants raised from seed supplied by Messrs. R. Veitch & Sons and Rutley and Silverlock. The heads were closer than those of Snow's Winter White, which was, however, represented in by no means its best condition.

FLORAL COMMITTEE.—Present: Dr. M. T. Masters in the chair, and Messrs. R. Dean, T. Baines, F. R. Ross, H. Herbst, W. Holmes, J. Walker, G. Nicholson, H. B. May, Henry Cannell, P. Blair, B. Wynne, Henry Turner, Charles Noble, George Paul, J. Fraser, R. B. Lowe, and W. C. Leach.

Messrs. J. Veitch & Sons, Chelsea, contributed a collection of pitchers of hybrid *Nepenthes*, representing over forty distinct forms (silver medal). Messrs. Barr & Son, Covent Garden, exhibited flowering plants of *Anemone fulgens*, *Crocus Imperati*, *Galanthus Elwesi*, *Narcissus minimus*, *Crocus Sieberi*, and *Crocus chrysanthus* in pots and pans. Messrs. G. Paul & Son, Cheshunt, showed plants of *Spirea astilboides* with feathery spikes of white flowers, and the black-spined *Arum sanctum*. Mr. H. B. May, Edmonton, had an interesting group of Ferns, for which a bronze medal was awarded. Messrs. H. Cannell and Sons, Swanley, showed a series of choice Primulas, and several were adjudged awards of merit, and a vote of thanks recognised the whole collection. Messrs. Walsbaw & Son of Scarborough exhibited spathes and leaves of *Richardia aethiopica* (vote of thanks). Mr. O. Thomas, Chatsworth Gardens, sent several strong plants of *Amaryllis* (vote of thanks).

ORCHID COMMITTEE.—Present: Sir Trevor Lawrence, Bart., M.P., in the chair; Baron Schröder, and Messrs. De B. Crawshay, F. G. Tautz, T. B. Haywood, F. A. Philbrick, H. Ballantine, H. M. Pollett, J. Dominy, C. Pilcher, Harry J. Veitch, Lewis Castle, F. Moore, James O'Brien, E. Hill and A. H. Smee. A well attended meeting was held, and the exhibits were exceptionally good for this time of year. Sir Trevor Lawrence, Bart., M.P., exhibited a group of choice Orchids, several of which were certificated. Others were *Lælia Patini*, regarded as the same as *Cattleya Skinneri* (vote of thanks); *Dendrobium nobile Cooksoni*, bearing eight fine flowers, very distinct and beautiful (certificated February 14th, 1888); *D. nobile Tollianum* in which the lip is turned the reverse way—namely, upwards; and *Lælia pumila* var. *El Spiritio Sancto*.

E. Ellis, Esq., Manor House, Wallington (gardener, Mr. A. Glover), sent a plant of *Lycaste plana* with over a dozen very dark flowers (cultural commendation). N. N. Sberwood, Esq., Dunedin, Streatham Hill (gardener, Mr. J. Jones), was awarded a vote of thanks for a dark variety of *Lycaste Skinneri* named *rubra*; the flowers of a deep reddish crimson. Messrs. Pitcher & Manda, East Dulwich, sent a plant of *Cypripedium Masereelianum* (*C. Spicerianum* and *C. insigne Cbantini*) which was considered to be identical with *C. Lecanum* (vote of thanks). F. G. Tautz, Esq., Goldbawk Road, Hammersmith (gardener, Mr. J. C. Cowley), showed several varieties of *Lycaste Skinneri* and the pretty pale yellow *Cælogyne lentiginosa*. De B. Crawshay, Esq., Rosefields, Sevenoaks, sent a plant of *Lælia Crawshayana*, much resembling a small variety of *L. anceps*. Mr. Harvy, Riversdale Road, Liverpool, showed a plant of

Lælia anceps with ten white flowers (vote of thanks). T. Slatter, Esq. (gardener, Mr. R. Johnson), Stand Hall, Whitfield, Manchester, had a plant of *Vanda Amesiana alba* with several spikes of white flowers (vote of thanks). Mr. P. Blair, Trentham Gardens, showed *Cattleya Trianae albescens* with seven flowers nearly white with blush tinted lips (vote of thanks). *Cypripedium Calypso* from Messrs. J. Veitch & Sons, were awarded a vote of thanks. It is the result of a cross between *C. Spicerianum* and *C. villosum* Boxalli, but it is much like *C. Spicerianum*.

CERTIFICATED PLANTS.

Dendrobium Juno (Sir Trevor Lawrence).—A hybrid between *D. Wardianum* and *D. moniliforme*, the growth resembling the former. The flower is of excellent shape, the sepals and petals broad, white, deeply tinged with crimson, the lip rounded, having a maroon centre, a yellowish tinge, a white zone, and a purplish marginal band. (First-class certificate).

Dendrobium Luna (Sir Trevor Lawrence).—A hybrid between *D. Ainsworthi* and *D. Findleyanum*, the pseudo-bulbs and growth resembling the latter parent. The flowers are about 2½ inches across the lip, nearly circular, but somewhat oval, creamy white, yellow at the base, with a few purple veins in the centre. The sepals and petals are creamy white, faintly tipped with purple, the petals slightly broader than the sepals. The flowers were borne on short racemes of three or four each. It appears to be a free-growing and free-flowering *Dendrobium*, and it is likely to become a useful Orchid. (First-class certificate).

Dendrobium Macfarlanei (J. Veitch & Sons).—A species from New Guinea, remarkably distinct, and a valuable addition to the list of cultivated *Dendrobiums*. The sepals are acute, tapering, rather more than an inch long, white; the petals are rhomboidal in form, 1¾ inch long, 1 inch broad at the widest portion, and also white. The lip has an obovate central lobe, white; the basal wings white, with a few deep purple veins. The growth is somewhat fusiform, after the style of *D. thyrsoflorum*, and the plant shown had two flowers. (First-class certificate).

Dendrobium nobile, Burford variety (Sir T. Lawrence, Bart., M.P.).—A peculiar and interesting variety of the *Cooksoni* type, but the rich crimson colouring of the lip is extended to the lower part of the two basal sepals, instead of in the petals, as with *Cooksoni*.

Dendrobium xanthocentrum (Sir Trevor Lawrence).—A hybrid, evidently partaking of the *Dendrobium Findleyanum* character in growth and flowers. The sepals and petals are spreading, white, tipped with purple; the lip flat, open, orange in the centre, with bands of white and pale purple. Free and good.

Primula Eynsford Pink (H. Cannell & Sons).—A pretty variety, the flowers large, of good substance, and a delicate pink colour. (Award of merit).

Primula Eynsford Red (H. Cannell & Sons).—Rich crimson flowers, freely produced in stout trusses. (Award of merit).

Primula Her Majesty (H. Cannell & Sons).—Flowers of great size and substance, pure white, with a deep yellow eye. Fern-leaved. (Award of merit).

Pteris serrulata gloriosa (H. B. May).—A graceful variety of a well-known useful Fern, a capital addition to the list of Ferns for decorative purposes. (Award of merit).

PRIMULA OBCONICA.

In establishments where large demands are made for plants suitable for house and conservatory furnishing, the value of the *Primula* under notice cannot well be overlooked, as it provides a decided change from the more generally cultivated Chinese varieties in the various purposes to which flowers and plants are applied. It certainly lacks the bright colours and bold flowers that characterise the most popular strains of *P. sinensis*, but this failing is counteracted to some extent by their free and continuous flowering. So far as I have been able to learn they have not been subjected to the hybridiser's attention as affecting variety of colour, although from a packet of seeds now plants may be secured of varying character both as to habit and shade of colour, but the latter only assumes a lilac of a more or less degree of intensity. For small vases they are capitally suited, as from their dense growth the soil is completely hidden, and the pots partially so from the recurving nature of the leafstalks.

Unfortunately for the plant its reputation is somewhat at stake, for it has been found by some persons of delicate skin to cause irritation after a slight touch with the hand, and is consequently greeted with much the same terror as that associated with the handling of a Nettle, by some ladies to whom these unfavourable symptoms have been related. However, this will concern the smaller amateur grower more than gardeners, and to either such objections can be ill afforded. For gas-lighted rooms it is invaluable, as it will withstand such unfavourable conditions better than the majority of flowering plants. Most people are cognisant of the injury done to plants by gas, and blooming plants in particular, for a season's growth is expended in a few hours when submitted to an atmosphere highly charged with gas. *P. sinensis* withstands the impure air to a commendable degree, but it cannot be said, I think, to have the same resenting quality possessed by

P. obconica. From these remarks it will be understood to be an excellent plant for town growers in particular, and to cultivators in general. Treatment accorded to *P. sinensis* is found suitable for the other in almost every detail.—W. S.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE Secretary, in sending us the following balance-sheet, as audited on Monday evening last, remarks, he "does not think there is much cause for complaint." Nor do we, but on the contrary think there is much reason for gratification that the Institution is so well supported, and that it is doing increasing good to those who have toiled long in gardens and need assistance in the eventide of life.

STATEMENT OF THE RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION FOR THE YEAR ENDING DECEMBER, 31ST, 1889.

	DR.	£ s. d.	£ s. d.	£ s. d.
To Balance, 1888 .. .. .	.. .. .	1328 0 0		647 14 4
To Annual Subscriptions .. .. .	.. .. .	2471 5 10		
To Donations at and in consequence of Annual Dinner .. .. .	.. .. .	994 9 9		
To Collecting Cards .. .. .	.. .. .		
		4778 15 7		
To Advertisements .. .. .	.. .. .	63 1 0	4836 16	
To Dividends on Stock .. .. .	.. .. .	608 12 6		
To Interest on Deposit .. .. .	.. .. .	78 14 7		
To Legacy—viz., Proceeds of Legacy of the late J. Rylands, Esq. .. .. .	.. .. .		680 7 1	
			527 1 9	6044 5 5
				£5691 19 9
				Stock in 2½ per cent. Consols, £23,600.
	CR.	£ s. d.	£ s. d.	
By Pensions and Gratuities .. .. .	.. .. .		2848 18 4	
By Secretary's Salary and Honorarium .. .. .	.. .. .	186 5 0		
By Rent of Offices .. .. .	.. .. .	75 0 0		
By Stationery .. .. .	.. .. .	25 6 8		
By Book of Cheques .. .. .	.. .. .	3 6 8		
By Printing .. .. .	.. .. .	155 0 0		
By Expenses of Annual Dinner .. .. .	.. .. .	153 16 10		
By Marion & Co for Frames .. .. .	.. .. .	4 1 4		
By Postages and Sundry Petty Expenses .. .. .	.. .. .	140 9 1		
			743 5 7	
				3091 18 11
By Amount placed on Deposit .. .. .	.. .. .	1030 0 0		
By Purchase of £1900 2½ per cent. Consols .. .. .	.. .. .	1843 14 0		
			2846 14 0	
				5938 12 11
By Balances—viz., With Treasurer at Banker's .. .. .	.. .. .	729 2 8		
With Secretary .. .. .	.. .. .	24 4 7		
			753 6 10	
				£6691 19 9

Audited January 13th, 1890,
JOHN LEE,
J. T. MESTON,
J. WILLARD.

A further addition of pensioners will be elected on the date of the present issue of this Journal.

WESTLEY HALL GARDENS.

THE weather is not favourable for visiting gardens just now, nevertheless to escape from the smoke of the metropolis for a few whiffs of bracing air outweighs any losses of natural beauty, scenery, &c., one would expect from a visit to the country in the summer. The owners of the above gardens, R. Burrell, Esq., and Mrs. Burrell, take great interest in horticulture, sparing no expense necessary to produce fruit, flowers and vegetables equal to any. A happy man then must be the gardener, Mr. Bishop, who has had charge of these gardens four years, and they do him great credit. The garden is some distance from the house, and lies on the crest of a south hill, and the shrubberies are enhanced in beauty in summer by containing many flowering specimens. The houses are well arranged. The Peach range, in which the parasitical fungi have been eradicated, covers the whole length of the inside south wall of the kitchen garden, the back wall being covered with well trained trees, and the front being filled with standards in 11-inch pots. These succeed exceptionally well, and last year were much admired by all who saw them.

Two small stoves running at right angles to the Peach range are filled with specimen *Crotons*, *Dracænas*, &c. I noticed a good plant of *Scuticaria Steeli*, which flowered twice last summer, and is now again showing bloom. Two larger houses parallel to the small stoves comprised a greenhouse and stove, the former filled with the flowering plants, including a fine strain of *Primulas*, the latter being filled with fine *Adiantums*, some reaching 7 feet in diameter, *Davallia Mooreana* being extremely fine, together with *Crotons*, *Dracænas*, and a few *Orchids*. There is also a range of vineries, and flower houses, but they contain nothing of exceptional merit at this period of the year to call for mention; the Vines however, have been greatly improved.

The object of penning this was to give my ideas about the fungi, but when good examples of culture are seen they cannot be overlooked. For instance, Potatoes in pots are grown well and are much appreciated. Celery and Peas are more in demand than other vegetables; the former is extra good, and the secret of success is a good dressing of blood and fish manure obtained from the Westley Manure Works, which is applied at the earthing up and in the trench at planting time.

An outside south wall was covered with Peach trees which have been

almost entirely destroyed by the fungus. Nothing has been done specially to eradicate it, but of course now that Mr. Bishop has proved himself the master of this parasite no pains will be spared. The cause of his success he will explain in the Journal shortly.—VISITOR.

THE AMATEUR'S BEESTON GREENHOUSE.

A FORTNIGHT ago we directed attention to this greenhouse, and subsequently the annexed illustration and particulars arrived after a delay in transit. Messrs. Foster & Pearson say in respect to the structure, "Having received many inquiries whether glass sides and ends can be adopted to our well-known 10 feet and 12 feet frames, we beg to introduce the above new house, which will, we believe, prove a great step in advance of any previously offered to the public. The roof lights slide up and down, and are secured by a very simple arrangement, at intervals of 3 inches, so that they cannot be lifted by the wind. The side lights are fast, as air blowing directly upon the plants is generally considered injurious, and side ventilation is here given by our registered iron ventilators placed under the sill, so that the air is warmed by passing over the pipes as it enters the house. One door is provided for each house unless otherwise ordered. The lights can be at once removed if necessary to expose the contents of the house. The iron rafters which span from sill to sill give the "Beeston" houses great strength, and there is no danger of sides or roof giving way after a few years' wear.

They threw up a few spikes through the summer; in the autumn of 1889 some had four and five spikes, mostly with five or six flowers each; one had seven, which I had never seen before, as I think five is the general number, although I have several at the present time with six each, and six and seven spikes to an 8-inch pot, which I think is not so bad considering the condition they were in two years ago this spring. They have not been rested at all since I had them with the exception of withholding water from the roots for about two weeks at the end of November. They were kept in the same temperature as they had been growing in before, they were syringed every day with the rest of the plants in the stoves to prevent flagging. The soil that I found best for them is nearly three parts good loam, one part leaf mould, with plenty of river sand and a few lumps of charcoal to keep the soil sweet. Some use manure, but I do not; I would much rather use a little soot, giving them liquid manure about twice a week when they are growing, also a little guano water. It is essential in good culture to provide good drainage, firm potting, and careful watering; to keep the soil sweet with plenty of heat and a moist atmosphere, also shading from hot sunshine. Eucharises are not much troubled with insects. Thrips are their worst enemy, which can generally be kept down by syringing, although mealy bug is apt to be troublesome at times; they can, however, be easily removed by sponging the leaves.—W. JONES, Dorset.

[Some excellent flowers of *Eucharis grandiflora* accompanied this letter, well substantiating our correspondent's remarks as to the success

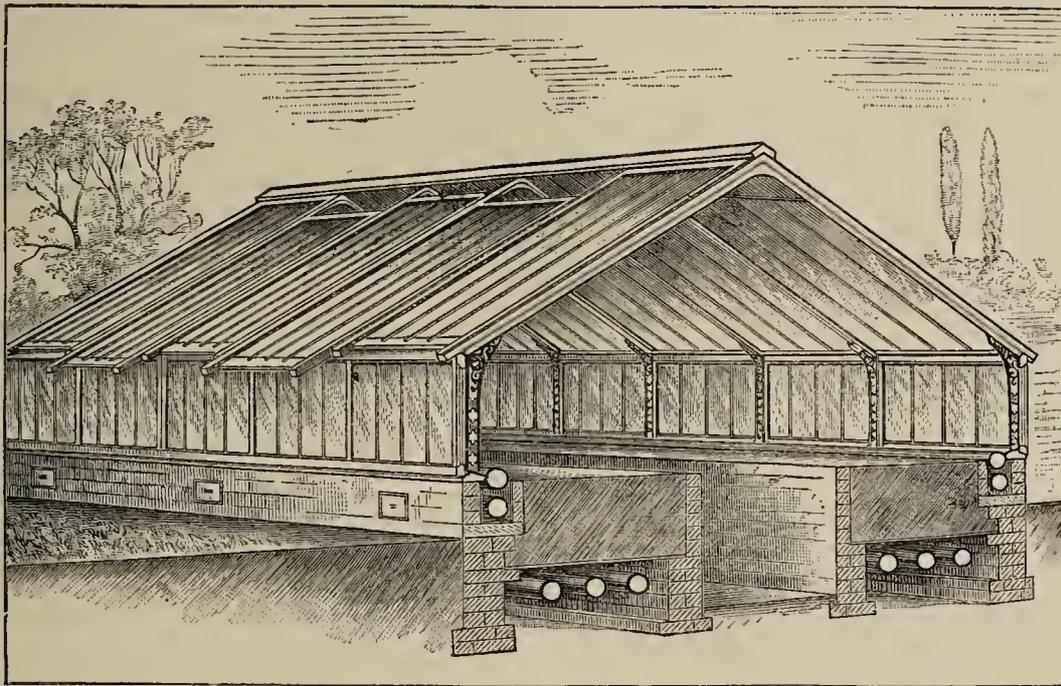


FIG. 8.—THE AMATEUR'S BEESTON GREENHOUSE.

The woodwork is constructed of the best red deal, well seasoned, and painted three coats; 21 oz. sheet glass is sent packed in crates or glazing, and all parts are carefully numbered, so as to be readily fixed by any ordinary workman. The height from floor to top of roof is 8 feet 1 inch, and the woodwork of sides is 2 feet 3 inches high in the houses 12 feet wide, and 2 feet high in those 10 feet wide. If required for plant houses they can be filled up with stages instead of beds as shown."

These elevated frames are made in various sizes, and a glance at the figure will suffice to show how well adapted they are to various cultural purposes.

EUCHARIS GRANDIFLORA.

I HAVE been greatly interested in the notes that have appeared respecting Eucharises, so I thought I would just say a word as to the treatment I have found to suit them. In the first place the plants that I started with did not look promising, as they were old bulbs given to me by a friend two years ago that he had condemned to the rubbish heap. I could not say whether they had the Eucharis mite or not, all I know is that the bulbs were decayed half way through, had not a root and scarcely a leaf. The first thing I did was to pull all the decayed portions from them. I then prepared some clean 6-inch pots, and placed four or five of the largest bulbs in each, besides a few of the smaller ones. They were then plunged in a hotbed about 75°, besides top heat, which was kept from 75° to 85° in the day, from 65° to 75° at night; they soon began to show signs of life. I did not water them the first week or two, but syringed them morning and afternoon, kept them shaded from hot sun, as I find they will not stand much sun heat even when established. I always shade them in the spring and summer from 10 A.M. till about 3 P.M., syringing them well at closing time. I had a few spikes of flowers from them the first autumn, and in the spring of 1889 I transferred the bulbs to 8-inch pots without disturbing them, as I think it a great mistake to separate the bulbs when in good condition.

of his culture. Flowers also were enclosed of *Kalanchoe carnea*, fine heads and very fragrant. Mr. Jones says he has twenty plants in flower from seed sown last March.]

REVIEW OF BOOK.

English Vegetables and Flowers in India and Ceylon. By DONALD McDONALD. London: John Haddon & Co., 3, Bouverie Street, Fleet Street, S.E. 1890.

THIS is a neatly bound well printed manual of sixty pages, containing a large amount of information likely to be useful to residents in British India. Inquiries are often made for a handy guide to the essentials of gardening in tropical countries, and more especially with regard to India, and the requirements of those seeking information will be exactly met by the book under notice. Chapters or sections are devoted to "The Climate and Physical Features of India," "The Soils of India," "Formation of a Garden." An admirably suggestive calendar is given adapted for Northern, Central, and Southern India. An elaborate table "showing the proper months to sow and plant English vegetables in the plains," also conveys a good deal of information in a small space. Then we have alphabetical arrangements of the best vegetables and flowers, with the quantities of seed to be sown, and the general cultural treatment. Particulars of the hill stations and garden cultivation in Upper India, notes on Ceylon, lists of ornamental foliage plants, notes on lawns, Roses, bulbs, English fruits, and a variety of useful information that cannot fail to be appreciated. We cordially commend the book to any readers who are meditating a journey to our Empire in the East.

A BULLFINCH ANTIDOTE.

IN reference to the request on page 27 the following are the proportions in which I use the dressing I find effectual:—To 30 gallons of soft

fork, removing the finest particles by the aid of a sieve, sticks also being carefully picked out. This rough heap, when cleaned, will be found useful for placing over the drainage of many plants, and incorporating with composts that are required as rough as possible. Our leaf mould is never stacked or used for potting purposes when too much decomposed. We prefer it while the fibre of the leaves is still perfectly fresh, which will be the case if the leaves have not laid more than 1 foot in depth, and are fully exposed.

Manure.—Where much potting has to be done at various seasons of the year it is necessary to wheel into a shed good heaps of manure in autumn and at the present time. The autumn supply consists of cow manure, from which the straw was shaken out, and horse droppings. The former, if moderately dry when stored, will rub easily through a half-inch sieve. It is useless to sift it if not dry enough, for if laid thickly together the labour of sifting would be wasted. If not sufficiently dry place it in boxes or flat hampers for a few days in the boiler house or other position to dry. Be careful that it is not baked, for this evil is as bad as sifting it when too wet. The horse droppings should be in good condition for passing through a sieve. The preparation of manure for potting is important; it cannot well be too finely divided for incorporating with other adhesive ingredients. If it is wet and adhesive it renders a compost with which it may be mixed unsuitable for use. Cow manure may be stored twelve months previous to being used when perfectly fresh. Our plan is to place it in an old shed and surround it with dry loam to soak up all the liquid that runs from it. This loam is equal to manure for many plants afterwards. As it is removed from the manure heap it is mixed with equal quantities of dry loam and a fresh supply placed round the heap of manure. No waste takes place by this method, and the loam that has been soaked with manure will be found invaluable for *Richardias*, *Chrysanthemums*, and plants of a similar nature.

Artificial Manures.—The stock required for the year's supply should be ordered, so that it will be ready for use when required. Amongst these may be included half and quarter-inch bones with the fine left in, as well as a supply of meal. A box or barrel of soot should also be placed handy for use, and a few barrowfuls of wood ashes. Very few plants dislike the two latter, and either may be beneficially used in the majority of composts where loam, leaf mould, and manure are mainly employed.

Sand and Charcoal.—If the supply of the former is not equal to what will be required no time should be lost in getting in the necessary quantity. For mixing with composts it is much better dry than wet, especially early in the season when other ingredients have a tendency to be moist. Charcoal should be sorted and broken into suitable sizes.

Peat.—Sort this into three classes, that with the most fibre being reserved for Orchids, the hardest for Azaleas, Heaths, and other hard-wooded plants, while the lightest will do for Ferns. For the two latter it should simply be broken up with the hand, and Fern roots, pieces of wood, and strong roots of Heaths removed; while that required for Orchids should have all the particles of soil shook out of it, which will be useful for many small Ferns, Mosses, and other plants.

Pots and Crocks.—The former should all be washed ready for use where they are not washed up as they are emptied and stored away in their sizes. The crocks must be thoroughly washed; this is as important as using clean pots. The drainage of many plants is rendered untimely defective by the use of dirty crocks. When washed and dry sort and break them into various sizes ready for use, and place them separately. This is quickly done by the aid of sieves, except the largest or two largest sizes, and this can be selected during the process of breaking, and should be placed on one side first.

Labels and Stakes.—The first we have long since discontinued making, for they can now be purchased so cheaply. The necessary quantity should be ordered ready for use, and relabelling can be done as far as possible. It is a mistake to leave it until the different plants require potting, as is too frequently the case. Repoint stakes and tie them in sizes, it can then be seen what sizes and the quantity that will be needed. These if bought should be placed in early so that they can be pointed. Small stakes for a variety of purposes are generally in demand, and for this purpose large Bamboos are bought, cut into lengths, and split; the sharp edges are merely taken off with a knife, and the stakes pointed off at one end.

Boxes.—Some will decay, and to keep a good stock in condition for use a few should be made annually. We use common floor boards 6 inches wide. The ends and sides only want sawing into lengths. The bottoms are soon nailed on if the width is such that two or three boards without sawing will cover it. For three boards placed lengthways the boxes should be 19 inches wide, which will allow two half-inch spaces for drainage. If shallow boxes only are needed the boards may be sawed straight down the centre. Boxes last half as long again when thoroughly painted inside and out before they are used.

added to that we already possess, which will guide us better in the future in all things rural. "As a little spark sometimes kindleth a great fire," so will the neglect of doing a small thing give us much vexation, and often much labour and disappointment afterwards. Confining myself to the bee department, there were many instances where the honey harvest was nil. For similar reasons 1888 closed unfavourably for bees and the bee-keeper, and 1889 until the middle of May was even more so in many places; but wherever judicious management was adopted there was also a harvest of honey, greater in some places than in others, as is always the case, but in many instances there has not been an ounce of honey taken, although the bees were often situated short distances from successful apiaries—positive proof that there was something radically wrong in the management of the first named. If I were to write all the correspondence I get on bee matters it would sometimes fill up the greater part of the pages of this Journal, and would perhaps serve no good purpose, so care has been taken to write only that which experience has proved to be serviceable to bee-keepers in a profitable point of view.

One instance which will perhaps surprise some is worth recording. A number of straw hives which stood at the Heather in a northerly direction, and about fourteen miles from my own, rose in weight somewhere about 100 lbs., and the station master over that place told me his bees never did better. The geographical formation of the country had perhaps something to do with this. It lies in a broad valley between high hills north and south of it, so that the rain which deluged some parts of the country was almost absent there. One singular thing, for many miles round the rain fell in circles, and the places between these escaped. This was most frequent during August.

I do not for a moment think of advising bee-keepers to adopt straw hives, neither will I advise their owners to put them away and adopt frame ones. By simply pointing to results I should, for once at any rate, have the worst of it, and when everything is taken into consideration, including the teachings of those who advocate that extracted honey pays best because of the greater demand for it, much is in favour of the straw hive. I will not discuss the question further than that if the two kinds of hives had been standing near each other I have not the slightest doubt but that the owners of the straw hives would have seen the superiority of the wooden ones. Ocular demonstration, experiments and facts, are the best things to convince and reason on.

There has been very little if anything new in appliances for the apiary. Some old appliances have been termed new, and several we discovered and first gave to the world have been appropriated by and credited to others. The Editor of one paper credits someone with the discovery of carbolic acid for clearing bees from supers, as well as repeating the error that before "honey could be extracted by the Lanarkshire honey presser the combs had to be broken to a pulp!" Then in the December number, page 252, he says, "But there was more excuse for us twenty-three years ago than there is for the bee-keeper of to-day; we had no bee journals to guide us, and the sources of information now available were very limited indeed." An unmistakeable error. I grant there were not so many letters from bee-keepers published in those days, nor were so many novelties and peculiar ideas printed as now; but the more stable and sensible modes of management, which many are now returning back to, were taught, and queries answered, often, too, in a more rational manner than they are now in journals which have existed for a year or more—the *Philosophical Journal* and *Philosophical Transactions*, *Farmers' Magazine*, *Scottish Gardener*, and others; then in England there were the *Journal of Horticulture*, the *Cottage Gardener* (the leader in bee matters, which the back numbers show), the *Gardeners' Chronicle*, and the *English Mechanic*. Every one of these taught bee husbandry. The only interest the editors of any one had was the dissemination of bee husbandry, and it is to these publications that the bee-keepers of to-day are so much indebted.

THE BEE-KEEPER.

NOTES ON BEES.

A RETROSPECT.

IN looking back on the year that has closed upon us, and reflecting a little on the lessons it has given, more knowledge will be

SWARMING.

The causes of swarming and its prevention have long occupied the minds of continental bee-keepers, as well as those in the British Islands; but nothing has been brought forward that will in any way be serviceable to bee-keepers, nor prevent Nature taking its usual course. I have dealt with the subject largely, and have shown the causes of swarming, and the only preventive by the introduction of young and fertile queens at the proper time. "Felix" found fault with this teaching. I threw down the gauntlet, and along with many others waited patiently for his method of preventing swarming by "skilful management," but it has not been forthcoming, so young fertile queens, combined with ample room, must be looked upon as the only preventive until the fertile brain of "Felix" or others give other desirable and reliable information.

Another writer in a contemporary told us that the best thing to do was to keep the sort of bee that would not swarm! Novices would be apt to inquire what sort of bee is that, and where is it to be had; but experienced bee-keepers would only smile and exclaim, The bees that will not swarm will soon become extinct. It is the bees that swarm that give the large surplus of honey when a protracted fine season occurs.

SHALLOW FRAMES.

These have come more to the front during the past year, not only as being more suitable for bee-keeping generally, but as being suitable for disposing of honey in the comb, being better adapted for storing surplus honey than sections. The last-named original make are also giving way to the Lanarkshire ones with narrow bottom rail. As I have used these shallow frames between thirty and forty years, and the same hive without the euds on the bar for full forty years, it is pleasant to find that our ideas, plans, and modes of management are being largely adopted, although the journal the information is given in is not named or acknowledged. Judging from the past, it will not occupy much of the future until the system of management advocated so long in these pages becomes general.

BEGINNERS.

During the past six months I have been in correspondence with many beginners, asking for information. If health permit, I will, for their benefit, give some instructions in future numbers, which I trust will enable many to make a successful start, and secure a successful and profitable issue, and tend to make them more comfortable in the coming years, and that the first one, 1890, will be a happy and profitable one for all is the fervent wish of—A LANARKSHIRE BEE-KEEPER.

FAILURE IN THE INTRODUCTION OF CARNIOLIAN QUEENS.

"C. R.," after depositing a queen regnant, introduced a fertile Carniolian one, releasing her after being caged over the bees several days, but the bees deposed her. She had been slightly injured, having a depression on the thorax, which might tend to the bees' dislike for her. A second queen was treated similarly. "C. R." wishes to know the cause of his failure to introduce. It is more common than is generally supposed for hives to have more than one queen, and to introduce an alien one to such a hive is almost certain in every case to result in failure, as it also will be if eggs or larvæ is in the hive. Sometimes queen cells may not be started by the presence of a caged queen, but often they are, and when this is the case the alien queen is sooner or later doomed to destruction. Hence the caution necessary to deprive the bees of the power of raising a successor from the eggs or larvæ, and to cage the queen (when valuable) on every occasion at least forty-eight hours before releasing her.—A. L. B. K.

TRADE CATALOGUES RECEIVED.

J. Backhouse & Son, York.—*Seed List, 1890.*

J. Carter & Co., 237, High Holborn.—*Select List of New and Beautiful Chrysanthemums.*

H. Cannell & Sons, Swanley.—*List of Chrysanthemums.*

Fisher, Son & Sibray, Sheffield.—*Catalogue of Kitchen Garden and Flower Seeds.*

G. E. Elliott, Huddersfield.—*Catalogue of Vegetable and Flower Seeds.*

G. Stevens, St. John's Nursery, Putney.—*Catalogue of Chrysanthemums.*

Little & Ballantyne, Carlisle.—*Catalogue of Trees and Shrubs.*

Thomas Laxton, Bedford.—*List of Seeds, Potatoes, and Roots.*

Kent & Bryden, Darlington.—*Seed Catalogue, 1890.*

J. R. Tranter, Hart Street, Henley-on-Thames.—*Catalogue of Vegetable and Flower Seeds.*

Dicksons & Co., Waterloo Place, Edinburgh.—*Garden Seeds, 1890.*

Peter Henderson, New York.—*Manual of Everything in the Garden, 1890 (illustrated), and Farmers' Manual.*

J. E. Barnes, Norwich.—*Catalogue of Reliable Seeds.*

Jarman & Co., Chard, Somerset.—*Seed Manual for 1890.*

W. Cutbush & Son, Highgate and Barnet.—*Catalogue of Seeds, 1890.*

Oakshott & Millard, Reading.—*Guide to Practical Gardening, 1890.*

Charles Turner, Slough.—*Catalogue of Seeds.*

Daniels Bros., Norwich.—*Illustrated Guide for Amateur Gardeners, 1890.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Cesspool Disinfectant (F. J.).—The free use of chloride of lime when the contents are being removed may perhaps answer your purpose. Sulphate of iron used at the rate of 3 or 4 per cent. to the volume of the liquid is also a good for rendering the use of sewage less disagreeable to the operators.

Galls on Apple Trees (Wimbledon).—The holes in the portion of young wood sent have not been caused by birds in search of insects, but by the puncture of one of the gall insects for egg deposition, and the ultimate emergence of the progeny which eat their way out. One of the galls was intact on the shoot, and you will perhaps find others by a close examination of the trees.

Billandsia setacea (J. F. C.).—It is one of the small-growing species, and is easily managed if you can provide a suitable temperature for the plant. Employ a compost of peat and leaf soil, well draining the pot, and place the plant in a light position in a stove or any house where an average temperature of 60° can be maintained. Supply water freely at all times, but especially when the plant is growing.

Blisters on Holly Leaves (E. S.).—The appearance of the leaves is due to a fly puncturing and depositing eggs in them, from which maggots emerge and eat away the tissue in a similar way that maggots destroy the leaves of Celery. The Holly maggot has done great injury in many gardens, and in some its ravages have been checked by periodical syringings with a solution of softsoap and petrolcum.

Soil for Apples (J. E. W.).—Excellent Apples are grown within fifteen miles of London. The best soil is that inclining to be strong, but not very adhesive; such as works freely in favourable weather, and in which Clover grows naturally, being usually suitable. It should be good to the depth of 2 feet and contain no stagnant water within 3 feet of the surface. We cannot usefully name precise localities, as we have no records of land for sale or lease. Information of this kind is obtainable from agents. Much, or most, good land within the radius indicated is necessarily costly, and we think too high in price to justify inexperienced persons investing in it for growing Apples alone for sale; at least, they will not do so on our recommendation.

Treatment of Allamanda Hendersoni (J. C.).—If the plant has been at rest during the past two months and kept in a temperature of 50° to 55° it may now be started. Prune closely back—similar to Vines grown on the spur system—if the plant has attained the desired size to cover the trellis on which it may be grown, or the portion of roof under which it is to be trained. If grown in pots the old ball should be reduced by half, and then soaked in tepid water. The same or a larger pot should be used, according to the space to be covered with the plant. The drainage of the pot should be liberal, and then covered with a good layer of decayed manure, the most suitable compost being rich fibry loam, one-seventh of manure, and coarse sand. Press the soil as firmly

According to the quality of the produce and the manner of its disposal. Several of our personal friends have large herds of cows, yet most of them have a different way of management both of the cows and in the disposal of the milk. One sells the milk at the farm to a retail dealer who calls for it twice daily; another makes all the butter that can be had and rears a large quantity of pigs upon skim milk and home-grown corn; another sends most of the milk of his own cows direct from the farm to his customers' houses in "sealed" pint and quart bottles, and for butter a considerable quantity of milk is purchased from the neighbouring farmers. Large-mouthed glass bottles with screw stoppers are used, the stopper being secured by a neat adhesive label bearing the appropriate motto "Safe bind, safe find." This simple method effectually prevents the milk being tampered with, it tends to assure the consumer that he has a genuine article, and certainly answers the purpose of the producer whose dairy business became so extensive some time ago that he found it worth while to open a dairy shop in a town within a short drive of his farm. The one objection to the use of the glass bottles is the breakage, which involves an average annual loss of about £5.

Many other peculiar cases occur to us, such as the regular dispatch of all the milk by rail to London from long and short distances; the sale of the milk to a butter factory; the delivery of the milk to a retail dealer in a large town with a clear weekly settlement. In this case it is claimed that doubtful customers and bad debts are altogether avoided. Certainly the farmer is a thriving man, but then he turns the favourable situation of his farm to full account and does a profitable business in poultry, eggs, vegetables, and fruit. The farm is a small one, and the whole of the work is done by the farmer, with his wife, two sons, and a daughter, all grown up, and who thus worthily illustrate the proverbial bundle of sticks, and certainly cling together to good purpose. Thrift, industry, and a fair amount of intelligence and good sense have in this instance told so well that no complaints about hard times are heard; on the contrary, quiet expressions of satisfaction with the prices obtained for the whole of the farm produce are occasionally let fall. Poultry plays a worthy part here, about 100 hens being kept, and eggs recently have had a brisk sale at 2s. a dozen. It is simple nonsense to say that any considerable extension of poultry farming would bring down prices so much as to render it unprofitable. There is a wide margin to work upon, and the limits of profit will not soon, if ever, be reached.

A notable and highly satisfactory thing in the cases we have quoted, and many others known to us, is the admirable way in which all good farmers adapt themselves to the circumstances of their surroundings. For farmers generally the sale of milk is probably found preferable to butter making, both because of the saving of labour and the greater degree of certainty of a constant demand and brisk sale. Present rates are slightly in excess of 9d. per imperial gallon, or 1s. 8d. per barn gallon of 17 pints, less 1½d., or say an average of three fathings per imperial gallon for rail carriage, the cans being returned carriage free. Such landlords as Lord Hampden are doing much for the assistance of tenant farmers by the establishment of dairy factories, even if prices given for milk are placed upon the basis of small profits and quick returns. A steady inflow of ready money is a matter of vital importance to a struggling farmer. It is this want which so frequently bring young calves upon the market which should have been kept at the farm at almost any momentary sacrifice. Very seldom is it that really good cows are to be had by purchase, and every cow calf from a really good cow should be reared and kept for filling those inevitable vacancies in the herd which occur all too frequently.

Factories or no factories, butter making is profitable enough if only it is well done. We quite recently inspected a grass farm in the Croydon district, which strongly commended itself to our judgment as a sound investment for a tenant at the inclusive rent of £2 per acre, which was required by the landlord. It was excellent

sound pasture, in useful division, hard by a railway station, with a splendid neighbourhood for the sale of a first-class article. That is the point; only make first class butter of uniform quality, let your herd of cows be arranged upon a footing that will enable you to guarantee a regular supply of a given quantity, and though you may have a struggle to establish a reputation and obtain a connection, you are bound to do it, despite tempting importations from Brittany or any other country.

WORK ON THE HOME FARM.

The ravages of swine fever still continue in certain districts. A recent report states that during the last nine months 333 had been attacked, forty had been slaughtered, 244 had died, and forty-nine recovered. This was in South Lincolnshire, and the report tells further of eight flocks attacked by scab. The scab is in its way as infectious as swine fever, but it is easily got rid of by dipping the sheep in Cooper's dressing, and no particular harm is done if the sheep have attention at once. Swine fever is always more or less fatal, and farmers should always be on their guard against infection. More than this, there should be an end of slovenly practice in the management of swine. We recently built a range of piggeries with concrete floors, tiled roofs, with doors to the stys as well as the courts. There ought to be no difficulty in keeping such buildings perfectly clean, yet when we called to see them after the tenant had only used them for a week we found the usual horrible accumulations of filth. Our own piggeries are old ones, having boarded walls and partitions with tiled roofs, and floors all faced with Portland cement. We only use litter for bedding in the stys, none being used in the courts, which are swept out every day, and the litter is changed once every week. All the woodwork is limewashed, and they are thus kept quite sufficiently sweet and clean. At the present time we have a considerable number of porkers in course of preparation for the London markets, and care is taken not to suffer them to be crowded, and to take a little extra care as to cleanliness. Some of these porkers are reserved for sows, and they are fed as highly as the others, to bring them into breeding as early as possible. We recently purchased a lot of pigs that are capital examples of the value of judicious cross-breeding. Essex pigs are notoriously coarse, long-bodied animals, but the pigs we purchased were the result of a cross between an Essex sow and Berkshire boar, the result being compact animals, with many of the Berkshire's best points sufficiently prominent to render them altogether superior to the ordinary Essex pig.

OUR LETTER BOX.

Cow for a Small Farm (J. M.).—The most profitable sort of cow for a small farm is a cross-bred animal of tolerably large frame, naturally inclined to a lusty condition, with a large udder and rich milk. Such cows are to be found at most good dairy farms, and you ought to be able to obtain one in your own neighbourhood. But you must be prepared to pay a special price for the privilege of selection, as no one will part with a really good cow if he can help it. The average price of a cow in full milk now is £25, and for £4 or £5 more you ought to be able to obtain what you require. But you must be cautious and avoid mere cattle dealers, whose habit is to try and put a false gloss upon every animal they have to sell. Do not be tempted by cows offered for sale at fairs or markets, but rather go to a large dairy farm or some breeder of repute, and if possible select a young cow that has recently had its second calf, and is consequently at its best. Notes on manures will appear in an early issue.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE. 1890. January.	9 A.M.				IN THE DAY.				Rain. in.		
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass	
Sunday	5 29.750	deg. 45.4	deg. 48.1	S. W.	deg. 37.1	deg. 52.2	deg. 42.8	deg. 52.4	deg. 36.5	in. 0.158	
Monday	6 30.257	50.5	49.9	S. E.	40.9	54.5	46.1	55.4	44.9	0.109	
Tuesday	7 30.371	43.2	46.4	S.	42.4	55.1	47.7	73.9	42.9	—	
Wednesday ..	8 30.299	49.2	48.8	S. E.	43.2	51.2	48.4	57.4	43.8	0.119	
Thursday	9 30.306	41.1	59.4	S.	41.9	53.7	36.5	93.5	29.1	0.170	
Friday	10 30.425	44.2	41.0	S.	43.1	49.1	41.0	73.9	37.4	—	
Saturday	11 30.238	42.5	39.9	S. W.	41.9	51.6	38.8	51.7	33.9	0.115	
		30.173	46.0	44.5		41.5	52.5	43.0	61.3	33.2	0.611

REMARKS.

- 5th.—Wet till 1 P.M.; showery afternoon; fair evening and night.
 6th.—Dull and showery morning; cloudy afternoon; wet evening.
 7th.—Sunshine throughout.
 8th.—Cloudy morning; fine afternoon, some sunshine; showers in the evening; bright night.
 9th.—Fine, with sunshine in the morning; wet afternoon an evening; solar halo at 11.30 A.M.
 10th.—Cloudless morning; high wind and a little cloud in the afternoon.
 11th.—Overcast, with frequent spots of rain in the morning; drizzle in the afternoon and evening.
 A mild and showery week, but with two perfect days. Temperature more than 15° higher than that of the preceding week, and nearly 10° above the average.—G. J. SYMONS.



EMIGRATION OF GARDENERS.

THE remarks by Mr. Wright on the emigration of gardeners to the United States of America and the Dominion of Canada in a recent issue of the *Journal of Horticulture* (December 19th, 1889) were peculiarly interesting to me. Who is to blame for our overstocked market? The manufacturer! True, gardeners often take apprentices with nothing in view except the "almighty dollar," yet they are not wholly to blame, as they frequently have raw material put into their hands by proprietors of gardens, out of which they are expected to manufacture an article for which there is no present or prospective demand. Every individual of ordinary mental capacity and the needful practical application may readily become an expert, but as gardens are not so easily manufactured as the gardeners it follows that there is a glut, and the gardener as well as the farmer must, if there is to be national increase, seek fresh fields. With the artisan it is different. Skilled labour is fully employed because the field enlarges by the production of a cheapened and superior article, but cultivators must seek fresh pastures; in fact, the cultivator is the pioneer of civilisation—the maker of trade and commerce.

Emigration is, indeed, a necessity to the British farmer and gardener. It is practically useless, however, sending a gardener abroad who has failed through lack of energy at home, for in emigrating to the United States of America it must be borne in mind that we have, so far as the States on the Atlantic seaboard and the great northern and central cities or seats of trade and commerce are concerned, to compete with a people fully equal to our own in all essential qualities, and with the advantage of being more adaptable, more inventive, more eager to get on, and less under the influence of routine and prejudice. If the experience of one who has passed six years in the United States and Canada mean anything, it is that considerable physical force and mental energy are necessary for enduring the strain put upon them in what proved "a struggle for existence."

The experience I shall endeavour to give was obtained by an individual assumed to possess ample energy and competence as a gardener in good establishments in England—viz., apprenticed to a good all-round gardener orchidist in the environs of Liverpool, helper in a good all-round establishment in the neighbourhood of Darlington, foreman in a marquis's garden, also with three M.P.s, two of them baronets, ultimately becoming gardener to a baronet, from whose service came in due course a release. Then came the inevitable waiting for a market. A market not being obtainable in England, it was resolved to seek one in the United States of America, and, following the same lines as Mr. Wright traversed with his medical friend, I shall keep back nothing except the name (which I place in the hands of the Editor as an evidence of good faith) of our gardener friend, who furnished the particulars under circumstances that will appear later on. Our "brother of the spade" left England 10th January, 1884, in the s.s. *Polynesian*, Liverpool to Philadelphia, nine days to Portland, weather rough, head winds, overcast, Portland to Boston on to Stonington by rail, from the latter to New York by water, and then on to Philadelphia by rail, these journeys occupying two and a half days, or eleven and a half days from Liverpool to Philadelphia. Work was obtained the second day after arrival at Philadelphia with a florist, in the houses under a foreman at twelve dollars per month and

board, with promise of advance to fifteen dollars in summer. He was quartered with coloured men, which was objected to, with the result that our friend was told to leave, and he did so after six weeks' employ. He secured work again readily with an Irish florist, jobbing and trimming up plots, twenty cents per hour, no rations, and although only promised a few days or a "leg up," had five weeks' employment. Failing to obtain heed for the credentials taken out—as the Yankee makes a practice of proving his man as the Englishman does his horse—a move inland was made, a few days planting Tobacco in Connecticut, three miles from Hartford, supplying the needful for the journey to Rhode Island. Three miles from Providence work was got at hoeing Yellow (Indian) Corn at two dollars per day, where a stay was made over hay, Wheat, and Oat harvest, the employer being a dairyman and an Englishman. From there a journey was made northward, entering Maine the 13th August, finding Wheat, Barley, and Oats harvested.

He there engaged with a farmer, owner of a 100 acre farm, at twelve dollars per month with board and rations. Had to learn milking, the stock being eight cows, twenty-nine bullocks, thirty-five sheep, three hogs, five hundred fowls, and six hundred pigeons. Four horses were kept. The farmer worked, the wife worked, milking the eight cows before the new hand learned to milk, and when he did, found a "mother" in the farmer's wife. No female servant was kept, "I was the whole and sole dependant and help—a veritable man Friday." The first work there was cleaning Yellow Corn, Potatoes, Turnips, Beans (Haricot or Pea Beans), Tomatoes, Squash and Pumpkins (Vegetable Marrows), Melons, Cucumbers, Carrots, &c., housing as matured. Then came the getting in of the Maize crop, which does not do well, and is not much grown, but is a paying crop for forage, dried and stored as hay. Sweet Corn is much grown, paying well, being sold to factories for canning. Apple harvest came in due course, there being three acres of full grown trees, all choice varieties, Baldwin and Cornish Gilliflower being the two best winter varieties for dessert, Baldwin of course being equally good as a culinary sort. New York Pippin, large, red streaked, culinary or dessert, good, fall (autumn); Ten-ounce Pippin, large, culinary or dessert, red streaked, beautiful; Seek no Further, red and yellow, good to eat and cook, keeping till March; Northern Spy, Northern Greening, and Golden Russet were fine, the latter very prolific, and keeping sound until May; Early Harvest, gathered before ripe to retain juiciness and flavour: and Red Astrachan, large, very fine, gathered or used off the tree are the best early Apples. The ground under and between the trees was cropped with Rye, allowed to ripen, and valuable for its straw for thatching.

The trees were standards 24 feet apart; pruned in winter, well thinning the heads with a saw. The Apples as gathered were placed in barrels at a cost of twenty-two cents each, and when filled with fruit these were worth one dollar each, the sender paying carriage to the port. Five barrels were considered a good day's work for a man, the fruit being shaken down, left in the orchard to sweat but kept dry. One tree will yield from three to four barrels, all picked fruit, refuse being kept for cider, hogs, and cows. "Borers" infest the trees, to keep down which the stems were white or lime washed, or the insects killed by a red hot iron thrust into the holes in spring. All insects that seek to lay their eggs are kept from ascending by a broad ring of cotton wool, about 5 feet from the ground, with a tin cover to keep it dry and effective. Pears are not much grown, as they do not succeed, nor do Peaches and Grapes. Cherries do well, as Black Heart and May Duke, they with Apple trees being planted in hedgerows, taking a similar place there to what timber trees do in England. Timber, or rather lumber, is grown on land that is not suited for tillage. Plum trees do not succeed.

In Maine a stay was made of one and a half year, as during the preceding winter a desire came, often and strong, upon our friend to follow "his own business;" therefore he left the "best

master and kindest-hearted man ever servant had served," and a thorough-bred Yankee. Winters were occupied in chopping wood, taking manure to fields, and attending to stock. The winter season extended to four months, very cold, often at zero, and occasionally 39° below zero. The summer season was eight months, high temperature, 75° to 80° and often 90° in the shade. Winter wages, twelve dollars; summer, fifteen, board and rations, which if not a great wage was amply met by the "comfort and consideration shown and felt." The farmer, it ought to be noted, had been a schoolmaster, saved some money, bought a farm, taking to rural life for employment and delight; but the Yankee must do or die—*i.e.*, make money or lose it; therefore the farm must pay, working like a horse all the summer, and idle in the winter only—*i.e.*, read and contrive all day long, and enjoy summer's givings, clearing in many "a season more dollars than were given for the land." "Tons of books" were this Maine farmer's only solace.—UTILITARIAN.

(To be continued.)

THE notes that appeared in this paper of December 19th bear forcibly on several conversations we have lately had with gardeners in various positions on the subject of gardeners out of situations. We do not intend to touch on emigration, but wish to say a few words on how it would be possible to better our position in this country. We are told there are fewer gardeners out of employment in England than men of any other trade or profession. However true or false this may be we know not, but about one thing there can be no mistake, there are numbers of gardeners out of situations at all seasons, and the temporary employment offered to them by nurserymen may account for their not being enumerated amongst the unemployed.

A gardener may leave his situation for a variety of reasons, and in the event of no suitable situation presenting itself the only course left open to him is to go into the nursery, there to wait for the chance that does not always come as soon as he anticipated. What does a gardener gain by working for a nurseryman for weeks or months, and in some cases for over a year, for a wage less than some of the common labourers? He gains nothing for himself, and does a great deal of injury to the permanent staff in a nursery. We do not say that a gardener is doing wrong because if he cannot get a whole loaf he takes a half, far from that. We honour the man who can take up the pick or the pade and bravely face whatever comes in his way, but we do say gardeners are wrong in not endeavouring to do something for themselves against the evil day when a man finds himself out of a situation, and where is the gardener that has not this uncomfortable presentment? A hundred things might happen over which he has no control, and which might be the means of his having to leave his place.

There is no class of men in a better position than gardeners are for placing themselves out of the reach of this difficulty. That is one of the greatest drawbacks a gardener has to contend with in the present day. They are not, as a rule, so highly paid that they can afford to spend money on advertising, which we imagine is one of, if not the very best, modes of gaining situations. Nor can they be very long out of a situation without doing something for the means of existence. This being the case it must be apparent that some little help at this time would be the greatest benefit a man could wish for. Now, were gardeners to form a body, call it by some name, and pay a certain sum of money for twelve months, at the end of that time a man leaving or wishing to change his situation would communicate with the society, when they would at once begin to advertise for him, and so place him into a situation sooner and more suitable to his ability than he could ever hope for through a nurseryman, and in the event of his not immediately obtaining a suitable appointment some sort of help might be devised for him. Were a society of this sort once started there is no bounds to what it might include for the united good of the

gardener; but this we will leave to wiser heads than ours, and should this suggestion meet with the approval or otherwise of anyone who might read it, we should be glad to hear their views on the subject.—B, *Cheshire*.

A FEW GOOD VEGETABLES.

ALL who are wise will not readily discard old and well proven favourites in favour of the unknown, the superior merits of which have yet to be discovered, but if certain varieties have given every satisfaction in the past, some of them have been eclipsed by later additions to the list. This being so, there is every reason why a few novelties, or any strongly recommended by those who have already given them a fair trial, should be tried alongside older varieties, and if the latter are surpassed, then ought they to go down before their superiors. But I annually try a few novelties, and when I come across a good thing I not only grow it again and more extensively, but also give others the benefit of my experience. The latter I hold to be the proper thing to do, and I believe comments upon superior varieties of vegetables are always thoroughly appreciated by numerous readers of the *Journal of Horticulture*.

Some of the leading catalogues first enumerate Peas, and to a few varieties of these I will first allude. I find that William Hurst is equal to Chelsea Gem, both being excellent dwarf early varieties, suitable alike for frames and sheltered borders. There is nothing very new among the taller growing early varieties, nor any startling novelty among the second early forms. None that I have tried equals Telephone for succeeding William L., and Criterion is still my favourite for succeeding Telephone. I was never much in love with Duke of Albany, as it invariably suffers badly from mildew here, but I can speak highly of Autocrat as a good main crop and late variety. Goldfinder is a good form of Ne Plus Ultra, and the same may be said of Magnum Bonum, the last named being scarcely so tall growing as the type. Both succeed admirably in our strong soil, and fewer rows of the ever-popular Ne Plus Ultra are sown accordingly. Those who prefer or must have varieties of medium height only, will find Stratagem still unsurpassed for second early and main crops, and Carter's Anticipation is well worthy of a trial. Webb's Wordsley Wonder is very serviceable, and one of the best for small gardens. It is a second early variety, and has long been a favourite with me. Very good also are Royal Jubilee and Satisfaction, both sent out recently by Messrs. Sutton & Sons. Latest of all and Sturdy are excellent for the latest sowings, and on the whole those who cannot afford room or stakes for tall-growing Peas have no cause for complaint ament the scarcity of suitable and profitable varieties.

Of Broad Beans the most profitable early variety is found in Veitch's Improved Longpod, this being a great cropper, the lower pods, all of which are of a good length, quite touching the ground. No improvement can hardly be effected on this. Beck's Dwarf Green Gem, though quite an old form, is still not so much grown as it deserves to be. It is dwarf, branching, and early, the pods being small and filled with small green beans, or just such as suit the cooks. If exhibition pods are needed, then Leviathan ought to be grown. The broad podded later varieties are also being increased in length. Veitch's (Exeter) Improved Broad Windsor is a notable instance of this, and other firms have improved forms. There is nothing very new that is valuable in the way of Kidney Beans, Canadian Wonder and Negro Long-pod still being the best for main crop, while for forcing and the earliest sowings in the open there is none to equal Ne Plus Ultra. Those who want extra long-podded Runner Beans can get them by sowing either Veitch's Mammoth Scarlet, Carter's Jubilee, Girtford Giant, Mammoth White, or Ne Plus Ultra. I give the preference to the last-named as being the least coarse.

There is nothing fresh to chronicle concerning Beet, the best we have being the old Dell's Crimson. Last season Veitch's Improved Black was very superior, but the roots of this we are now using are too coarse. Dobbie's New Purple, as shown at the Chiswick Conference, gained plenty of admirers, the colour of the by no means coarse roots pleasing all alike. We still prefer Read's Hearting Borecole, the old Asparagus Kale being, however, more hardy, and is the best for a very late supply of succulent greens. The value of Veitch's Self-protecting Autumn Broccoli is now too well known for the variety to need any eulogy from me, and Michaelmas White is also early and good. Snow's Superb White affords a fairly close succession to the first named, and of this the Sandringham (Carter's) is an admirable selection. The Cape varieties are far too delicate, and the Penzance Early White is a wretched failure, an ordinarily severe frost destroying the plants. It cannot be kept in a dwarf or semi-hardy state. Spring White, Cooling's Matchless, and Leamington form an admirable succession, while Safeguard

(Sutton's) is a valuable addition to the list of late varieties, this hearting in just in advance of the distinct and good Veitch's Model. The best latest varieties I find are Ledsham's Latest of All and Sutton's Late Queen. Brussels Sprout Ne Plus Ultra, synonym Northaw Prize, is my favourite strain, this being of moderately strong even growth, a sure cropper, the sprouts being of medium size, firm, and mild in flavour. Exhibition grows rather stronger, and this also is a profitable stock.

Ellam's Early, Matchless, Paris Market, and Early Etampes were all good and are well adapted for close planting in private gardens, as also is Wheeler's Imperial. Chou de Burghley or Cabbage Broccoli ought to be grown for the midwinter supplies. We have abundance of it at the present time from seed; being the first week in May the majority of the hearts are sufficiently compact. Savoy Cabbage ranks among the most reliable winter vegetables we have, only an extra severe frost much injuring them. Tom Thumb is of neat growth, early, and good in quality, while the Early Dwarf Ulm is very good in every way. Gilbert's Universal is also of fairly neat growth, while the quality is exceptionally good. Dwarf Green Curled and Drumhead afford a good succession, but they are somewhat coarse. The list of Cauliflowers is still being added to, one of the latest novelties, Sutton's Magnum Bonum, being a decided advance. It is suitable for second early and main crops, is of dwarf yet fairly vigorous habit, and the produce of superior quality. The Early Forcing is quite a little gem, Erfurt Mammoth forms a good succession, while for the autumn nothing can well surpass Veitch's Autumn Giant.

Last season we tried several varieties of Carrots, especial regard being paid to the invaluable Horn or Stump-rooted sorts. Parisian Forcing (Vilmorin), a small round smooth-rooted form of French Forcing, is superior to the latter for frame work. Guerande was found to closely resemble Early Gem and Model, and this form under any name is well worthy of a trial. It forms shorter and thicker roots than Nantes Horn. For the latter I have a great partiality, and if a single variety only was sown that would be the one. Matchless and New Intermediate are apparently synonymous and much superior to the old James' Intermediate, and Carter's Scarlet Perfection is also a superior form of Intermediate, the quality of the last named being very good. Celery Veitch's Early White is the best white variety I have yet tried, this early in the season almost equalling Major Clarke's Red for solidity, crispness, and nutty flavour. Veitch's Early Rose is another distinct and good novelty, Major Clarke's Red and Standard Bearer completing the selection. The Parisian Celeriacs are decidedly superior to the form generally offered and grown in this country. The new Apple-shaped and Large Smooth Prague are of very compact growth and form good sized bulbs of the best quality. I ought perhaps to warn the inexperienced against the White Plume and Golden Yellow Self-branching Celeriacs, as they are erroneously termed; unless moulded up they are uneatable, and under any circumstances inferior.

Leek Ayton Castle Giant is good enough for the non-exhibitor, but if extra fine stems are required The Lyon may well be grown. Nor are enormous Onions of much value for home use, and for this purpose we are well content with Main Crop, Giant Zittau, and either James' Keeping or Brown Globe for spring-sowing, while for autumn sowing The Queen, White Naples, Giant White Tripoli, and Giant Rocca are satisfactory. Turnip Early Milau is by far the quickest to bulb, but keeps badly. Early Snowball and the French Early Paris Market, white oblong variety, which keeps extremely well, are good for most crops. Veitch's Red Globe is fine for autumn and winter use, and none equals Chirk Castle Black Stone for hardness and quality. Potatoes and Tomatoes I must pass.

Cabbage Lettuces Early Paris Market and Perfect Gem are our favourites, White Paris Cos and Black-seeded Bath Cos being also largely grown. We tried a considerable number of varieties, but those just named, all things considered, are the pick of the lot. The Louviers Endive (Vilmorin) is both distinct and good, in fact the best for the earliest crops, Picpus Green Curled also being good. The White Batavian or Lettuce-leaved Endive is superior as regards perfect blanching, crispness, and mildness of flavour, being almost equal to good Cabbage Lettuce; but it is not nearly so hardy as the Improved Round-leaved Batavian. The latter is simply invaluable for late autumn and winter use. Endives are rightly receiving attention from raisers of novelties, and in the Victoria Improved Round we have a great improvement on the ordinary form; this, besides giving much finer leaves, also stands well. Much the same remarks apply to the monstrous Viroflay and the new Long Standing, and one or more of these varieties ought to quite supersede the old forms.—W. IGGULDEN.

[We have received several letters on the subject, the insertion of which would tend to bewilder rather than instruct, and the

above careful estimate of the leading crops is sufficient at present for practical purposes.]

NOTES ON HARDY FLOWERS IN KIRKCUDBRIGHTSHIRE.

WITH the new year flowers are beginning to peep out from their winter quarters. The common Snowdrops have been in flower since January 10th, and have, as they so often do, again proved untrue to their popular name of "Fair Maids of February," and shown that the old couplet,

"The Snowdrop in purst white arraie
First rears her head on Candlemas daie,"

like so many others, must be accepted with some reservation. Many clumps are now in flower on slopes and ridges of rockwork or on the level ground. Galanthus Elwesi is also in flower.

The little Winter Aconite has also expanded its bright golden flowers. Common and cheap as this little Eranthis hyemalis is, it is yet indispensable in the early spring garden. The first Daffodil of the year opened its flower on 13th January. It is Narcissus minimus, and has surprised me by its earliness, having far preceded all the others in my garden. The others, including N. pallidus præcox and its early varieties, will be some time before they open. This plant of N. minimus formed one of a small lot of imported bulbs purchased in 1883, and has not been out of the ground since October that year, so that lifting and drying cannot be ascribed as the reason of its early flowering.

Colchicum crociflorum is in flower, but an envious or admiring gastropod has thought that its delicate white flowers with blackish purple stripes would form a delicious meal, and has not only "marked," but "inwardly digested" to such good or evil purpose that our flowers are a pitiable sight.

Some of the early species of Crocus are only awaiting some gleams of sunshine to enable them to expand their brilliant blooms. Such an early season as this is not a good one for these early Crocuses. They get too far advanced before they get much sun, and cannot stand the drenching rains we are experiencing. Those I have ready to flower are C. Imperati, C. Sieberi, C. Aucheri, C. minimus, and C. biflorus, the Scotch Crocus. They are mostly very beautiful, and although I admire the large named Dutch Crocuses, of which I grow some twenty varieties, the above and the other species in my garden give far more pleasure, coming as they do at various times. C. Imperati is one of the earliest and most desirable species. When in bud the flowers are a soft fawn pencilled with black, and when open a bright purple. We have a number of Polyanthus and Primroses in flower, and some of the late Chrysanthemums still give a few blooms.—S. ARNOTT.

IMPROVED BLACKBERRIES.

MR. D. BROWN asks for information as to where he can obtain any improved varieties of the common Bramble. If his object is to obtain an abundance of good sized, juicy, well flavoured fruit, I recommend him to plant the Parsley-leaved Bramble (*Rubus fruticosus laciniatus*). Low-lying cold situations should be avoided for the plants, and the natural habit of the Blackberry in its wild state should be studied. I have during several years seen the Parsley, or Cut-leaved variety, grown in gardens, especially where a loamy soil existed, elevated situations, and plenty of room, with a tall trellis for the shoots to be trained to, and capital crops of large juicy fruit were obtained.

Questions have been asked as to its being an American variety or a native of Britain. *Rubus fruticosus*, the common Blackberry, is a plant widely distributed throughout Europe. The variety *laciniatus* is not mentioned in Hooker's "British Flora," or in the London "Catalogue of British Plants." In Loudon's "Arboretum et Fruticetum Britannicum," published 1838, it is stated in reference to *laciniatus*, "Where it was first found is unknown, but it is in all probability only a variety of the common Bramble." In Nicholson's "Dictionary of Gardening," published in 1887, no native country is given. I have often wondered why this excellent Blackberry has not had more attention from practical gardeners than it has, and I think that there are amongst the American kinds some which may under proper treatment be worthy of notice, but I must say I have very little knowledge of their value, as I am not in a position to test them.—RUBUS.

TROPÆOLUM JARRATTI.

THIS is stronger in growth and has larger flowers than *T. tricolorum*, the flowers of both being scarlet, yellow, and black. Both are very neat twining plants, charming for covering trellises, which may be flat (in which form they form admirable floral screens) or globes; the leafless top of a Larch or Spruce tree when well covered has a fine effect.

The tubers require to be potted so soon as they begin growing, which is usually in August. They should have pots proportionate to the size

of the bulbs. Large bulbs require 8 or 9-inch pots, whilst a 7-inch pot will accommodate a medium-sized bulb. I employ 9-inch pots, and have three bulbs in a pot, having a Spruce top for training the shoots to. The bulbs are placed triangularly in the pot, leaving a clear space in the centre for the introduction of the stem of the Spruce, which, clear of the pot, will be 2½ to 3 feet high, and half the height in diameter at the base, running up to a point so as to form a pyramid. I prefer this form because the plants take up less room.

Drainage is given to the extent of one-fourth the depth of the pot, covering it about an inch deep with the rough of the compost, which consists of equal parts of light turfy loam, leaf soil, and sandy peat, and a sixth part of silver sand. Fill the pots to within 2 inches of the rim, place the bulbs with the growing side upwards upon a little silver sand, and surround with the same material. Cover about an inch deep, the potting being done moderately firm. It is well for the soil to be in a moist state, but not wet, when employed for potting, so that necessity for watering may not arise until growth takes place.

The plants may be placed in any light airy cool house, and as soon as the shoots are long enough training should commence. The object should be to cover the trellis of whatever form it may be equally in every part with flowering shoots. Upon this depends in a great measure the beauty of the specimen, to secure which very frequent regulation of the shoots is required, not leaving them until they become entangled, it being difficult to disentangle them without much injury resulting.

Water should be given rather sparingly at first, avoiding at all times making the soil sodden, and yet the plants must not be allowed to suffer by want of water. If water be given when the soil is dry—a thorough supply—all will be well, making it liberal when the plants are in full leafage and advancing for flowering. When the flowering is past the leaves will shortly after turn yellow, when water should be gradually withheld, discontinuing it when they are all in that state. The bulbs, after the stems are withered, should be taken up and kept in a cool dry place until potting time again arrives.

They succeed admirably in a winter temperature from fire heat of 40° to 45°. Aphides sometimes attack them. It is best destroyed by fumigation with tobacco, but it is necessary that the foliage of the plants be dry and an overdose be not given, or the foliage is liable to suffer.—G.

BRITISH APPLE CULTURE.

At pages 38, 39, Mr. Wm. Thomson of Clovenfords makes a few pertinent remarks, but he fails to point out the resources some countries have over Britain in making barrels. It is quite true we could turn out barrels so far as the making is concerned as cheap as any nation, but we lack the forests of suitable timber, and are therefore much handicapped in that respect, while every day timber is rising in price. I fail to see the advantage barrels have over square packages. The latter can be made to "nest" better than barrels, and can be returned as empties in this way more cheaply and easier than if sent singly. About thirty-seven years ago I contracted with a fruit merchant to make nesting boxes for all kinds of hardy fruit, so that a return load of something could be brought from town, a thing not easily done when the empties occupied the same space as full packages.

Apples are being imported from Normandy, packed in shallow square cases, and judging from the appearance of the fruit this seems a more desirable way than packing in barrels. These Apples have a peculiar flavour, entirely their own, and are sold at 3d. and 4d. per pound this season.

I feel certain that timber packages will have to be more economically dealt with in the future than making kindling wood of. Willows might occupy many acres of what is at present uncropped ground, and the making of hampers would give employment to many unable to perform other work.

Lord Suffield Apple has never found favour with me as a cooking Apple, being, in my estimation, much inferior to the old Keswick Codlin; nor are any of the newer sorts equal to a variety known locally as "Perston" or Pearston. Size in many cases is the only recommendation possessed by Apples.—W. T., *Blantyre*.

A FEW NOTES FROM AMERICA.

MANY of the older generation of horticulturists will remember Mr. J. W. Laurence and the Farnham Castle Orchids in Bishop Sumner's time, Mr. Laurence having been gardener there for about twenty years. Soon after the death of the late Bishop Sumner, and the disposal of the Orchids, Mr. Laurence and his family emigrated to America, and started a business at Pittsburg, but a very advantageous offer being made to him to remove to Harrisburg, Pa, he did so. In a letter I have just received from him he writes, "Our business keeps on increasing, and the locality is healthy, only that age is telling upon me. Still I am to enjoy myself in the greenhouses amongst the Primulas, Cyclamens, &c. We make a speciality of both, and send young plants of our Primulas all over the States in the fall, and have a fine stock in 5-inch pots for Harrisburg. We go in now for raising our own seed successfully. Our Cyclamens are the finest strain in the United States, and some of our plants could not be covered by a half-bushel measure.

"We have had a whole year of bad weather. Last winter it was slushy, and our horse was not roughed once, and the sleigh was not once used. The summer has been wet, but we are here on high ground fortunately; for Harrisburg had its share of the floods in every street

The Susquehanna rose 27 feet. Our Tomato crop was good but rather late. Potatoes have decayed badly, Grapes also, but we saved much of our crop by spraying with the Bordeaux mixture. In fact the weather has been as bad as ever I saw it in England, and it has been raining now (November 21st) for a week. Apples are a great failure this season, so our vinegar crop is short. Strong winds blow all the flowers off the Apple trees. We had a cyclone or two this summer, which blew down a lot of houses, and made things lively; but the town puts up more, and goes ahead as usual. All the streets have the electric light, and steam heat is laid on to the houses in the same way as water or gas."—W. D.

MEDLARS.

I DO not think the value of Medlars is generally known, and I cannot understand why they are not more cultivated. I do not advise anyone to grow them so extensively as Apples and Pears, but from one to half a dozen trees might advantageously be grown in every garden. The trees are naturally of ornamental habit, so that they are well adapted for planting in pleasure grounds. They produce a luxuriant mass of leaves, a great show of pinkish white flowers. They rarely fail to fruit, as a rule, heavily, and neither insect nor bird, or any kind of pest, ever attempts to injure the crop. The fruit may be allowed to hang on the tree until November. It is hard and apparently green at that time, and they have to be drawn from the tree when they are spread out in a layer three or four deep in the fruit room or similar place. There they remain, and early in December some of them begin to soften. As soon as they are in that condition they are ready for use, and they will be found a very agreeable addition to the dessert.

They remain in use for about two months, and when so many of them are ripe at once that they cannot be used as dessert they should be preserved. Medlar jelly is a great delicacy, and for this purpose alone the fruit merits most extensive cultivation. Indeed I question if there is a finer jelly made than that from Medlars, as it is of a beautiful colour, and the flavour gives general satisfaction. There are four varieties of the Medlar. The Dutch is large but not superior in flavour; the Monstrous is still more so in both respects. The Royal is medium sized and good, but what is known as the Nottingham is the smallest and best flavoured. The latter is the one I prefer. As to culture they are as easily grown as a Gooseberry or Currant. They will succeed in any ordinary soil or locality, and the best time to plant is during winter when the leaves are off. They are offered in dwarf pyramid and standard forms, and the latter form the most handsome trees.—J. MUIR.



CYPRIPEDIUM SEDENI.

THIS Orchid is rarely out of flower when grown in the warmest house throughout the year. It increases rapidly in a warm moist structure when given liberal root room, in fact it is an almost continuous grower. Such plants are seldom removed from the house in which they are grown except on special occasions, but when in flower a prominent position is accorded them. Less water is given during the winter; but the soil is never allowed to become thoroughly dry, and no attempt is made to force rest upon the plant.

CYPRIPEDIUM SPICERIANUM.

Certainly charming when in flower, and one of our plants annually produces two flowers from the one stem. It is slightly different both in the foliage and colouring of the flower than the other plants. It is a good grower when given careful treatment and a warm moist temperature, but it requires care during the winter, or its foliage will become spotted. Abundance of water is necessary throughout the summer, and it must have material about its roots that does not decay quickly. Plants potted in loam are liable to have the leaves spotted; the soil becomes too close and often too wet during the winter. Our plants do well in charcoal, crocks, and peat fibre, with living sphagnum on the surface only. The roots cling firmly to the sides of the pot and to portions of crock that are used in the compost. During the worst weeks of the year the plant should not be watered over the foliage. This we carefully avoid, but give to the roots a moderately liberal supply. No harm results, because the compost is open, and the water quickly drains away. Cold water must not be used; it is certain to end in the foliage being spotted. It should be a few degrees higher than the temperature of the house.

ODONTOGLOSSUM ROSSI MAJUS.

Where choice flowers are in demand throughout the winter months, and those of Orchids are appreciated, large quantities of this useful Orchid should be grown. It is particularly cheap, and a good number of pans with from six to eight strong flowering pseudo-bulbs can be made up for a very small outlay. It is questionable if any Orchid yields a better return in flowers for the cost and attention than this. It grows with us like a weed in 5-inch pans that are about 2 inches deep. One good crock is placed at the base, a few smaller ones over it, and the plants are potted in a compost of peat fibre, small pieces of charcoal, with a little moss on the surface after the plants commence to grow. We elevate them little above the rim of the pan; they are gradually sloped from the centre towards the rim, and the base of the outer pseudo-bulbs is level with this.

We purchase early in the year as soon as we know of a consignment that has arrived in good condition, which is nearly always the case. If we buy large pieces, which we seldom do now, they are broken up. It is a mistake to place them on the surface in the often crowded condition in which the pseudo-bulbs are when they arrive. With us these pieces have never done so well as those that are broken up. After the plants arrive our first work is to pull them to pieces, remove all dead and decaying matter from amongst them, wash them thoroughly in tepid water, and then spread them out on a board for a week or ten days, sometimes longer, even until they display signs of moving. During the interval between arrival and placing them in pans they are occasionally dewed over with the syringe, in fact whenever the board becomes dry. There is no better place than a vinery just started for them. After they are placed in pans they are suspended about 15 inches from the glass in the *Odontoglossum* house, or any other structure where the temperature and atmosphere are similar. They are only lightly dewed with the syringe until active growth and root activity has commenced. The chief object at first is not to overwater them. Strong flowering bulbs are then made the first season. We give less water to this Orchid during the winter than to other *Odontoglossums*. On the other hand, the material about the roots is never allowed to become really dry. We were led to this practice some years ago through the first imported plants we potted. They grew away as freely and made as fine pseudo-bulbs the first season as well established plants. The drying they had undergone in transit had done them no harm. We have kept them drier during the resting period than most people do, and the results have been highly satisfactory. The puny growth and sickly condition in which this plant is often seen we believe to be mainly due to their having too much water during the winter.—ORCHID GROWER.

A NOVEL DENDROBIUM.

The first meeting of the Royal Horticultural Society's Orchid Committee for 1890, which took place on January 14th in the Drill

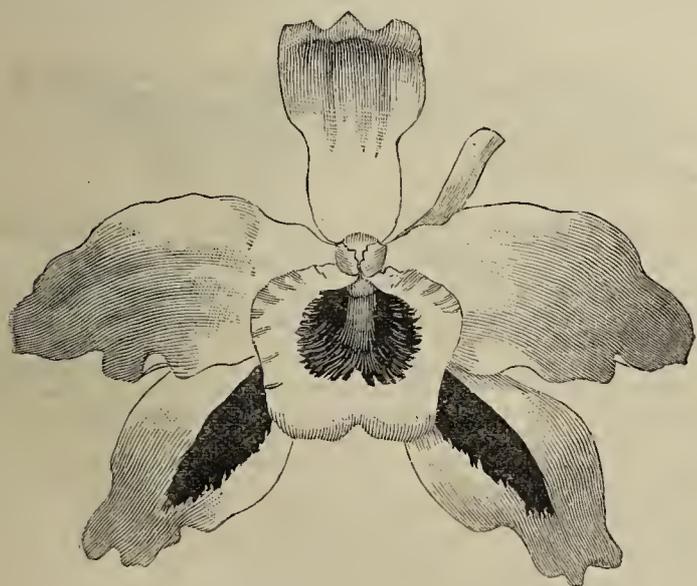


FIG. 9.—DENDROBIUM NOBILE BURFORD VAR.

Hall at Westminster, was an exceedingly interesting one, and augured well for the coming season. Several beautiful novelties were exhibited, and prominent amongst these were the hybrid *Dendrobiums* from the Society's President, Sir Trevor Lawrence. These have already been described, and we may have occasion to refer to them again, but there is one which calls for special notice now. This was exhibited and certificated under the cumbersome

title of *Dendrobium nobile* Burford variety, for which something much more concise and elegant might have been readily substituted. This is a particularly interesting Orchid for several reasons, but that which will chiefly concern cultivators is that it is decidedly attractive, and while regarded as a curiosity it will, if its



FIG. 10.—DENDROBIUM NOBILE COOKSONIANUM.

characters remain constant, become a favourite addition to the varieties of the most useful *Dendrobium* grown.

The lip, petals, and dorsal sepal are similar to those of any other good variety of *D. nobile*, but in the two lower sepals we find a peculiar character, the rich crimson colouring of the lip seems to have been extended to their lower halves in broad bold bars. A peculiar appearance is thus imparted to the flower, of which an idea can be formed from the representation of a flower in fig. 9. It will be seen at once that it has some resemblance to the now well known "three-lipped" *D. nobile* Cooksonianum, but in that the deep colouring is confined to the lip and the petals, these three organs thus assuming a very similar character. This peculiarity can be more readily understood than the transference of colour to the sepals without affecting the petals, but the occurrence of this variety has given rise to the impression that it is possible to obtain one with the lip colouring in *all* the sepals and petals, and we should at once have a regularity that would be approaching the florists' ideal. Whether such a form would be an acquisition from an orchidist's point of view is doubtful. Except as a curiosity I do not think it would. It appears to me that one of the great charms of Orchid flowers is in the absence of rigid formality and exact symmetry.

That *D. nobile* Cooksonianum and the Burford variety under consideration are good there can be no question—indeed, a plant of the former shown at the same meeting awakened general admiration, and though I have seen that variety many times I have never been so impressed with its distinctive beauty. The illustration here (fig. 10) reproduced, for comparison with the Burford variety, was prepared some time ago from a good flower, and in describing it I stated an opinion to which I still adhere—that having been named Cooksonianum in error it should have received its proper designation, Heathfieldianum. However, the substituted title has been so generally recognised that it would be difficult now, and perhaps inexpedient, to attempt to supersede it.

The whole subject of transferring the lip colour into the other divisions of the flower, which also occasionally assume the lip form, has been discussed scientifically by the late Professor Reichenbach as *Trilabella*, particularly in the paper he contributed to the Orchid Conference in 1885. In that he referred to instances occurring in *Oncidium Papilio*, *Laelia elegans*, *Oncidium prætectum* *Leeanum*, and *Phalenopsis Stuartiana* *Lendyana*, but some of these were much more marked than in the *Dendrobiums*, the lips being reproduced in triplicate exact in form and colour. Some such examples I have seen, but they always seem more like monstrosities, and certainly do not possess the beauty of *D. Cooksonianum*. There is one other *Dendrobium nobile* variety, named *Tollianum*, which has the colouring in the petals, but more confined to the margins, the lips are turned the reverse way (upwards) from their normal position, at least this was the case with a plant

recently exhibited at the Drill Hall. The sepals and petals also more closely surround the lip, being less spreading, and consequently the colouring is not well seen.—L. CASTLE.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ELECTION OF OFFICERS AND PENSIONERS.

LAST week we published the statement of accounts of this valuable Institution, and on the date of its appearance officers were elected for the ensuing year, and fifteen candidates placed on the pension list, six without ballot in accordance with the rules, and nine by the election of members. The officers chosen were H. J. Veitch, Esq., re-elected Treasurer, and Mr. R. Cutler, Secretary. Lord Revelstoke and C. Czarnikow, Esq., were elected Vice-Presidents, in the place of the late Sir M. Peto, Bart., and the late Mr. R. Marnock. Messrs. H. Turner and G. Wythes were elected, and Messrs. J. H. Weston, J. Webber, W. T. Baker and S. Osborne re-elected members of Committee.

The six candidates placed on the pension list as stated were Emily Friend, Mark Hebblethwaite, Eden Georgina Murray, John Skene, John Trotter and John Wainwright. The candidates elected by votes were James Baillie, 3241; Sophia Burt, 2369; Mary Ann Milroy, 1890; Elizabeth Parker, 1568; Sarah Brush, 1543; Robert Cox, 1537; George W. Young, 1493; Maria Milley, 1430, and James Robinson, 1213.

THE DINNER.

In the evening about seventy members and friends of the Institution celebrated the election by a social dinner where many similar gatherings have been held in previous years—namely, Simpson's Hotel, in the Strand. Mr. Edmund Yates presided, and all who were present will admit that he did so most happily. Mr. Yates is one of the literary celebrities of London—a man of the "World" in more respects than one—who can make a much better speech with a cigar in his mouth, and keep it (or both) going, than many persons could with all they desired to say written out before them. Loyal toasts, however, came before cigars, and were proposed befittingly and accepted joyously.

The CHAIRMAN then proposed "Success to the Gardeners' Royal Benevolent Institution." He said he had been supplied with figures bewildering and statistics appalling, showing the good that had been done, and of which his hearers probably knew better than he did; but he would say, and he said it gladly, that the Institution was the most prosperous of the many with which he was pleased to be connected. He had been interested in horticulture from childhood, commencing with growing Mustard and Cress, and he hoped the pursuit would afford him and all pleasure till all were sown. He thought no profession in the world was so natural, so wholesome, so helpful, and so suggestive of what was pure and good, and so stimulating to the finer feelings of man, as that of gardening. The speaker gave examples of this from poets, and concluded by expressing his delight in engaging in horticulture, particularly as he found it that night, for it tempered labour with refreshment, dealt hospitably with friends, and he hoped he should be among them again when prosperity was drunk to the Gardeners' Royal Benevolent Institution.

Mr. JOHN LEE in rising to respond met, as he always does as the venerable father of the charity, with an ovation, and many were the expressions of pleasure on seeing him look so hale and well. After an allusion to his acquaintance with the Yates family, many years ago in Hammersmith, he referred to the election of pensioners, observing that out of the list of twenty-five candidates only some half dozen had been supporters of the Institution, and the fact of so many having to wait still longer for election proved the necessity for more subscribers. He earnestly hoped that gardeners as a body would see the advisability of associating themselves with it early in life.

Mr. H. J. VEITCH, rising in response to the toast of his health as President of the next anniversary dinner in June, was loudly cheered. He said, though no one rejoiced more than he did with the candidates who were elected, he would have been glad if more of them had been subscribers. He was particularly pleased to see that Mrs. Milroy had been placed on the pension list. Her husband joined the Institution many years ago, at a time when he had no reason to think either he or his would be likely to require its assistance. He joined for the good of others, subscribed for twelve years, then was called away. His widow might have long ago sought benefit from the fund, but by great endeavour supported herself for twenty years before making application for election. This example of self-denial he thought worth mention, and he was delighted to see Mrs. Milroy now on the list. Referring to the position that he accepted, almost with fear and trembling, to preside at the next anniversary, he could not but remember that he was succeeding a munificent friend of the Institution (Mr. Leopold de Rothschild), whose presence at the dinner brought an increase to the fund of nearly £3000. Still, someone must succeed him, and he, after much consideration, consented to do so. Having done this it was his intention to do his very best for the charity, and called on all to do their best in helping him to increase its means for doing good. With the co-operation of many friends, though he could not hope to approach the results of his great predecessor, he must confess he should like to accomplish something that his successor would not find it easy to beat, especially when he announced, and he knew the announcement would be warmly

received, that the gentleman who had consented to follow him and preside next year was no other than the talented Chairman of the evening, Mr. Edmund Yates. (Loud cheers).

Mr. GEORGE PAUL, in acknowledging the toast of the nursery trade (Mr. Moss having responded for the seed trade) made a strong appeal to all engaged in the industry of horticulture to support a representative as President of the year, his friend Mr. Veitch. He trusted that nurserymen and seedsmen all over the kingdom, also gardeners, would heartily co-operate, and he was confident if his hopes were realised the year would be one of the best financially, and the dinner one of the most successful that had been experienced in the history of the institution. (Cheers.)

Mr. PARKINSON proposed the President, Vice-Presidents, and Committee, Mr. Herbert Adams and Mr. G. Monro responding. Somebody proposed the "Guests," for whom Sir John Monckton replied, and Mr. Sherwood introduced what he thought must be the toast of the evening—"Our Chairman."

MR. YATES, in response thereto, remarked that he had been told—but he feared if they took a good look at him the statement would not be believed—that he was with them thirty years ago; but it would be true if he lived, as he hoped, to take the chair as arranged in 1891, for it was in 1861 that he first sat down to a dinner of the Institution. He remembered that, because it was the first time he had addressed a public assembly. But, oh! the dinners he had attended since; the speeches he had made, the nonsense he had talked. That was not his fault: it was the fault of the Gardeners' Benevolent Institution, and his services (whatever they might be worth) would always be at its disposal. (Cheers.) He was now going to perform an act they were told was good—forgive an enemy. He had been tormented by a man all the evening who would not let him sit still, but he was in other respects such a good old frisky young fellow, such a true friend to and ardent worker for the Institution he had made to flourish, that he would ask them to join heartily in drinking his health, for his name was Cutler: and again, with emphasis—CUTLER. Then came a volume of sound, and "So say all of us."

Mr. CUTLER, in responding, said he thought they were doing a little too much. He had, however, been elected to the position he held for the forty-ninth time that day, and hoped he should live to be chosen once more. He could work better for gardeners than do his own gardening. He had tried to grow his own things, and put up a "sort of a house." He planted Melons, and they went on fine for a time till they had fruit as large as eggs, but hang him if they would get any bigger. He was in a quandary, when a friend came to the rescue and said, "What a fool you must be to bother with these things with so many gardening friends." Well, he (Mr. Cutler) thought there was something in that, so he trusted his friends to supply him with garden stuff, and they had not failed him; and he would not fail so long as he had strength to do the best he could as Secretary for the Gardeners' Royal Benevolent Institution. (Cheers.)

Miss Mary Belval, with her accomplished assistants, enlivened the proceedings by songs and glees delightfully rendered at intervals during the evening, which was of a very enjoyable character throughout.



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY.

(Continued from page 43.)

Madame Lacharme (Lacharme, 1872).—Of fair growth and foliage, with most characteristic habit. The shoots require to be severely thinned, and then they must be looked over from top to bottom several times during the growing season, as it is such a free bloomer that every wood bud will break and must be stopped before the top flower bud begins to swell. Very liable to mildew, and absolutely spoilt by any rain after the bud begins to show colour. Even a heavy dew will sometimes soil the blooms. These are of a pure white, and for years this Rose was the best H.P. of its colour, a row of it in full bloom looking most charming just as the dusk of a July evening comes on. Water appears to wash the colour off the petals and leave them transparent, for they are of the most delicate texture, and will show the ravages of thrips sooner perhaps than any, and as these are sure to come in some places in hot dry weather, and wet is even more fatal, Madame Lacharme has often a bad time of it. The shape is good, globular, with the centre well filled, but the size is not generally more than medium. It will come again well in the autumn if it should be particularly dry and fine, but as the best white H.P. it has been completely eclipsed by *Merveille de Lyon*, and must put up with the qualification "best under glass."

Madame Noman (Guillot, 1867).—Another pure white H.P., but a weak bud grower with small foliage. The blooms also are quite small, but of exquisite form and the purest colour. This Rose and *Boule de*

Neige are much better shaped than Madame Lacharme or Merveille de Lyon, but are so very small in comparison as to be completely out of it.

Madame Prosper Laugier (Verdier, 1875).—Of good strong stiff growth, with very distinct appearance and habit. Well spoken of as a useful Rose, but I could never get it to do at all with me, and have had to discard it long since.

Madame Victor Verdier (Verdier, 1863).—A very strong grower, with fine foliage beautifully coloured in the spring. Not liable to mildew, but rather worried by rain. A well known crimson Rose, which by no means comes up to its reputation with me. It is free flowering, and forms plenty of buds in the autumn, but I cannot honestly say that they come too much, nor are they as large as they ought to be in proportion to the growth. I have been gradually discarding it during the last three years, but I should gather from the general opinion that it does better with other cultivators.

Magna Charta (W. Paul, 1876).—Exceedingly strong growth, with large foliage; not very liable to mildew or much injured by rain. With me a coarse Rose, very large, double, and showy; rough on maidens, and generally much wanting in refinement. Fairly free blooming considering its size, and sweet scented, but a very bad autumnal. Hardy, and of strong constitution.

Maréchal Vaillant (Jamain, 1861), syn., *Avocat Duvier*.—Of good growth and foliage. A fairly free flowering, hardy, good ordinary common Rose, with no particular manners or merit.

Marguerite de Pomme (Schwartz, 1882).—Of Victor Verdier race, with all the special manners and customs of the family. Lighter than Marie Finger, but smaller, and not so good.

Marguerite de St. Amand (Jamain, 1864).—Of fine thorny growth, with good foliage, very green in the spring. Not liable to mildew or to be injured by rain. The blooms almost always come well, of a delightfully fresh pink colour, and of regular but rather open shape, well filled in the centre. A capital Rose, one of the best of its colour, free blooming, and a good autumnal; of large size, and good lasting quality. I am informed that it is an unfortunate custom of this Rose to be particularly palatable to rabbits, who will search out and attack it first among any number of Roses.

Marie Baumann (Baumann, 1863).—This is a Rose of great reputation. The growth as a cutback cannot be called more than fair, and the foliage is not large. The wood is moreover weak and pliable, and unable to support a heavy bloom, which therefore hangs over with its face to the ground. This habit undoubtedly detracts from the appearance of the flowers while on the plant, and they must be supported for show. Fragrant, not much injured by rain, but very liable to mildew. "Always good in all seasons," a very high quality claimed for this Rose, is perhaps rather too strong an expression. It was very good last year, much better than the year before, for all Roses are more or less affected by the weather and the season; still it is a wonderful Rose to "come good," and in this respect is perhaps more reliable than any other. Free blooming and a good autumnal, fair in petal, good in centre, of typical globular form, often very like Alfred Colomh (not only in shape, but also in colour), of large size, lovely smooth outline, and fair lasting qualities. It must be well cultivated, and will not do in poor soil or on the Manetti stock; but though it cannot be called a hardy sort of strong constitution, it has been for many years, and appears likely to continue to be, one of the most popular of Exhibition Roses.

Marie Cointet (Guillot, 1872).—One of the "weak robust" sort, like Madame Charles Wood in growth. Not liable to mildew, but suffering from rain. The blooms do not always come well, but when they do the petals are thick and good, the shape well imbricated, and the centre nicely filled. No use as a free bloomer or autumnal. Very good in lasting qualities, but (keeping the worst to the last) decidedly deficient in size.

Marie Finger (Guillot, 1872).—Better, I think, than *Mdlle. Eugénie Verdier*, which is held to be a synonym. Of Victor Verdier race, with all the manners and customs of the family, but decidedly one of the best of them. The growth is often marked moderate, but with me it is as good as that of any of the tribe. A most beautiful colour, often nearer what I call "salmon" than any other Rose. A row in good bloom will often draw your lady visitors, who are more attracted by colour from even your brightest crimsons. Of large size, but not of very good lasting qualities, the centre being rather weak, and the form soon lost. Very free blooming and an excellent autumnal.

Marie Rady (Fontaine, 1865), syn., *Comtesse de Choiseul* and Mrs. Jowitt, is much like it. Capital strong growth and foliage, not very liable to mildew, but utterly destroyed by any rain, even when quite in the bud state. Requires dry hot weather, and then most brilliant and superb; a striking contrast to the ugly, dull, brown rotting halls which are seen in a showery time. The blooms are large and particularly heavy, and any poet who speaks of being "pelted with Roses" as an æsthetical luxury may, I think, be convinced of error if he will allow me access to my "Rady's" in a damp season. A free bloomer, but does not shine as an autumnal; comes well as a rule if the weather is right with stout petals, very full centre, globular imbricated shape, brilliant red colour, and capital lasting qualities, but has a tendency to coarseness on maiden plants. A good hardy sort, likely to be in demand after a dry season, and to be neglected after a wet one.

Marie Verdier (Verdier, 1877).—Of short growth as a cutback, but

fairly healthy and strong, with good foliage, very green in the spring. Not very liable to mildew, and opens tolerably, but loses colour in rain. The blooms come generally well formed, with something of the cupped shape, the centre being well filled. Its strong points are the size, thickness, and smoothness of the petals; in these particulars it is hard to be surpassed. Fairly free blooming, but cannot be called a good autumnal; of large size, lasting in shape, but not in colour. A very good show Rose, particularly noticeable for the length and smoothness of its petals.

Mary Bennett (Bennett, 1884).—Fine shape, thick petals, good colour, and a good laster, but quite a bad grower. I cannot get it to do at all.

Marquise de Castellane (Pernet, 1869).—Of robust habit; sometimes a very strong grower, with thick long thorny shoots and fine foliage, but rather capricious in this matter and difficult to please. I see one professional of note quotes the growth as "moderate." My own impression is that it used to grow stronger than it does now. My plants, all treated exactly alike, are most uneven, some being very weak and some very strong. I have known it do well in light soil, but am not prepared to say that it likes it. At any rate, it will not be of any use if it does not make strong growth. The blooms frequently come unevenly shaped, but they very large and most effective when good. Not liable to mildew or much injured by rain, early, free flowering if it does well. Not very good in lasting qualities, but a capital autumnal, coming of good size quite late in the season.

Maurice Bernardin.—See Ferdinand de Lesseps.

Merveille de Lyon (Pernet, 1882).—Of Baroness Rothschild race, in all manners and customs resembling it in every particular. The finest white H.P. Rose by a long way; inclined to come with a slight pink shade in the autumn, but a grand Rose of the largest size. The blooms open quickly and are rather weak in the centre; they must be cut quite small for exhibition. This race has a splendid hardy constitution. I have no blanks in my cutback rows of this Rose and the Baroness. The plants are all alike and even; none die or are ever "sick or sorry." A capital autumnal, and a great acquisition altogether.

Miss Hassard (Turner, 1875).—Of strong thorny growth. Hardy, fairly free blooming, and a pretty pink colour, but the shape is weak and loose. May perhaps be considered worthy of a place, as being one of the earliest.

Monsieur Boncenne.—See Baron de Bonstetten.

Monsieur Noman (Guillot, 1866).—The growth of this Rose is puzzling. One catalogue gives it as robust; the majority call it "free," which may mean anything, but can generally be interpreted as "not bad enough to be classed moderate," and the National Rose Society's catalogue gives it as "very moderate," this being the only H.P. thus stigmatised. I remember that I was much surprised when I first saw this, as I was then trying to grow Roses in light gravelly soil, and it is no exaggeration to say that, in a good sized collection, Monsieur Noman was one of my best growers, but the blooms were not first-class. Now that I grow it in better soil it is decidedly weak in growth, but the flowers are much better. The characteristic wood is very enticing to prune to, if you do not know "its tricks and its manners;" for the base of every shoot swarms with great strong red buds, looking as if the plant was going to grow like fun next year; but the experienced pruner will leave very few indeed of these buds, and allow but few shoots to grow. It would be better, perhaps, to bud it annually, following the recommendation of the National Rose Society's catalogue—"best from maiden plants." Not liable to mildew, but absolutely spoiled by rain, which will cause the blooms to gum and rot in the early stages, and stain the petals when they are expanded. It pays well for a cap or protection of some sort in showery weather. Fine in petal and shape, clear in colour and large in size; a very free bloomer, but not of much use as an autumnal.—W. R. RAILLEM.

(To be continued.)

DRESSING ROSE BLOOMS.

IN thanking "D., Deal" for his words of admonition to myself, and for the complimentary terms in which he writes of dressing Rose blooms provided it is successfully done, will you allow me space for a rejoinder?

First, as to my supposed departure from the usual course pursued by members of committee. In writing to you upon a subject which was discussed at the annual general meeting of the National Rose Society, I recorded opinions intended to have been made personally had I attended the meeting. So that unless I should have been out of order, because a member of Committee, in taking part in the public consideration of the question at the meeting—not a Committee meeting, remember, but a meeting of subscribers, the proceedings of which have been reported in your paper—I can hardly be precluded from stating those opinions in a letter to the *Journal of Horticulture*. If I have thus trespassed, and I plead ignorance to the fact that the motion was put forward by the Committee, I humbly apologise to all affected thereby, especially to my friend, "D., Deal," to whom I appear to owe many thanks for his forbearance in letting this point pass.

Now as to the main point. Permit me to explain why I concluded that the decision in the case of Roses dressed "out of character" was "to be left to some other authority than that of judges." It was because the clause which deals with overdressed Roses is added to rules which have been and may again be enforced by that "other authority."

For it should be borne in mind that only in the case of duplicates (see rule 9) shall the judges' decision be absolute; rules 7 and 8, to which the dressing clause is appended, may be carried into effect by that "other authority." I thank "D., Deal," for his interpretation that dressing shall be dealt with solely by the judges.

But if this is so, is not the clause out of place in its present position, and altogether superfluous? Is there an exhibitor who intends when he dresses his Roses to do more than (I give the words of "D., Deal," in his description of the art) "to display their charms to the best perfection, and such dressing the rules of the Society acknowledge to be fair?" Exhibitors, like other people, make mistakes at times and overdress their blooms, as I know to my cost. It may happen that someone, especially a beginner in his eagerness to be first, overdoes it—the Rose is dressed "out of character," it is a blot in the stand, it is a bad bloom. Now, what is the penalty for thus spoiling the bloom? Nothing more, says "D., Deal," than that which is accorded to a bad bloom—the disqualification of the Rose, not the stand, by the usual method of judging. Surely it did not require a special clause on dressing to be added to the rules which refer to the disqualification of the exhibitor—not the Rose—for gumming, wiring, and the like! The judge comes to a bad bloom in a stand; he does not stop to consider whether it is the result of rain, overshadowing, bruising on the journey, or overdressing; he sees the bloom is a bad one, and deals with it accordingly. I myself, with other judges, have come across blooms spoilt most probably from overdressing, but we did not require this ambiguous clause to enable us to deal with the blooms according to their deserts.

I ought not to omit to acknowledge the very flattering terms in which Mr. W. R. Railem speaks of my poor attempts at dressing Rose blooms. My letter has not been unsuccessful if only for having elicited from such an excellent authority, exhibitor, and judge, his admirably expressed opinion that "dressing is often beneficial and desirable, and sometimes necessary."—JOSEPH H. PEMBERTON.

NOTES ON ROSES.

CLIMBING Niphetos fully bears out the raisers' description as to the growth it makes; its flowering qualities we have not been able to test, but hope next season to speak favourably on that point. Another good new Rose is Souvenir de Mdme. Joseph Metral; its bright red blooms are full, of good shape, and is a fine addition to the climbing Roses. If as good under glass as in the open it will rival Reine Marie Henriette. Among Teas Sappho seems to be a good grower. We have not flowered it yet. If up to the raiser's description it is certainly worth having. Mdme. Scipion Cochet is first class, with large solid blooms that remain fresh a long time. Luciole is also good, and quite distinct in colour. Mdme. A. Etienne is likely to prove useful, and probably better forced gently. Elizabeth de Grammont resembles a dwarf Gloire, sweet, of good constitution, with ample foliage. Château des Bergeries is an improved Isabella Sprunt, and most suitable in the bud state for cutting. Duchesse de Bragrance I cannot speak very highly of. It is a weak grower, but may improve with age. Mdme. Bois is a good addition in the Victor Verdier style. Mdme. Désir was very good, a free dwarf variety, but likely to be influenced by the seasons in the matter of opening. Mdme. J. Desbois, Mdme. Treve Marie (distinct colour), Dr. A. Joly, Comte de Paris, Queen of Autumn, Silver Queen, and Mdme. H. Pereire are all good.—S.

SPECIAL PRIZES FOR TEA AND MOSS ROSES.

THE following prizes have been offered in addition to those already provided for Roses at the meeting of the Royal Horticultural Society on June 24th:—Class V., for amateurs only, six varieties, Tea and Noisette Roses, three blooms of each, £2, £1, and 10s.; first and second prizes by Mr. Frank Cant, third by Mr. Prince. Class VI., for nurserymen only, twenty-four varieties, Teas and Noisettes, distinct, £2 10s., £1 10s., and £1; offered by Dr. Hogg, F.R.H.S., F.L.S., &c. Class VII., twelve varieties, Teas and Noisettes, distinct, three blooms of each, £2 10s., £1 10s., and £1; offered by W. H. Fowler, Esq. Class VIII., open, twelve varieties of Moss Roses in bunches, £1 10s., and £1; offered by Messrs. George Bunyard & Co. and Messrs. Cooling. Class IX., open, a basket of Tea and Noisette Roses, in tripod wicker baskets, as at National Rose Society's Shows, Rose foliage only to be used; offered by Messrs. Paul & Son.

DESTROYING PARASITIC FUNGI.

I MUST apologise to Mr. G. Steel for not replying to his inquiries before (see page 560 last vol.), but as Mr. Steel coupled Mr. Tonks' name with mine for the information he required I thought it prudent to give Mr. Tonks the opportunity of replying first. As Mr. Tonks has responded so ably I will now deal with the matter. In the first place I am asked by Mr. Steel if I can recommend anything that will destroy the Hollyhock fungus. My answer to this is in the affirmative, for I am quite confident the composition I have been experimenting with for the last ten years will destroy any species of fungus either indoors or out wherever it can be applied to it. In proof of this I may say I have battled successfully against fungus on the Gloxinia, Begonias, Roses (outdoors and in), fruit trees (outdoors and in), the Melon canker, and severe attacks of mildew on Grape Vines, which have baffled many a good gardener. I now come to that part of Mr. Steel's letter where he quotes me—"I was now convinced the enemy was a fungus of some description, and treated the trees accordingly." This was after I had tried all other remedies suggested, and had I followed my own dictates I should not have had half the trouble and anxiety,

as I should have treated the trees for a fungus from the first, therefore it was not the remedy I had to seek for.

Mr. Steel asks me for the name of the composition I used. The original, as used by Bell, was called mildew composition. I may state I was placed in the above gentleman's nursery at an early age, and was called upon to assist the manager to make up a stock of this same composition. When I became older I made many experiments on various kinds of fungoid growths, but without any apparent good results, not even exterminating severe cases of mildew. I therefore came to the conclusion the concoction was wrong (yet it was made in every respect the same as Bell's). I knew the composition contained two substances which were valuable antidotes against the fungi, but other ingredients were added which neutralised their power. By dispensing with these and adding other chemicals I have brought it to its present state of perfection. I shall be pleased to send a few bottles to two or three gardeners or nurserymen, on their paying railway expenses, for experimental purposes and report thereon, and should it prove as effective as with me I shall be most happy to bring it out for the benefit of my brother gardeners.

In reference to Mr. Tonks' remarks I should like to ask him if ever he took in hand to eradicate mildew on Grape Vines with the compositions he names, and with what result, as I have frequently made use of them both (the sulphur and lime especially), but I cannot recommend them only in a very mild case, for I find it only partially destroys it, as the mildew soon reappears. In conclusion, I may say if Mr. Steel should accept my offer he should add about a wineglassful of the composition to one gallon of warm soft water, and syringe the plants two or three times a day.—ALFRED BISHOP, *Westley Hall Gardens, Bury St. Edmunds.*



EVENTS OF THE WEEK.—To-day (Thursday) Messrs. W. Bush and Son will resume the sale of the late David Ward, Esq.'s, Orchids at Mount View, Sheffield; the Royal Society has a meeting to-day at 4.30 P.M. The Quekett Microscopical Club meet on Friday, January 24th, at 8 P.M.; and the Royal Botanic Society on Saturday, January 25th, at 3.45 P.M. On Monday, January 27th, the National Chrysanthemum Society's Annual General Meeting will be held in Anderton's Hotel, Flect Street, at 7 P.M. The Society of Arts has a meeting on Wednesday, January 29th, at 8 P.M.

— THE WEATHER in the metropolitan district has again been extremely variable, but several bright days have been experienced that are most welcome at this time of year, especially to those engaged in early forcing. Snowdrops, Winter Aconites, and Primroses are flowering in many gardens, and though the wind has been keen at night, little frost has been registered. Rain has fallen somewhat heavily on two or three days and nights, while Saturday night was very stormy.

— THE WEATHER IN THE NORTH.—The week has been extremely disagreeable, high winds and rains prevailing throughout. The 15th was an exception, being fine. Some of the nights have been tempestuous. There has been no frost. At 9 P.M. on the 16th the thermometer stood at 40°. Cold sleety showers with high gusty wind fell all throughout yesterday, and this morning (20th) the hills all round are white, and the low grounds covered with slushy snow.—B. D.

— DAFFODIL MEDALS.—It is announced in the schedule of the Royal Horticultural Society that Messrs. Barr & Son have placed at the disposal of the Council three silver medals, to be awarded at the great Daffodil Conference, April 15th, to the following exhibits:—Open to amateurs only.—1, Small silver medal for the best and most distinct twenty-five varieties of Daffodils, three flowers of each. The three great groups, Magni coronatæ, Medii coronatæ, and Parvi coronatæ must be represented. No Polyanthus Narcissi. 2, Large silver medal for the best and most distinct fifty varieties of Daffodils, three flowers of each, to include representatives from the Trumpet, Incomparabilis, Barri, Leedsii, Backhousei, Nelsoni, Burbidgei, Poeticus, &c., sections, but no Polyanthus Narcissi. Open to all comers.—Large silver medal for the largest, finest, most varied and distinct collection of Daffodils, irrespective of the number of flowers. No Polyanthus Narcissi.

— THE DEATH OF MR. C. R. M. TALBOT, the "Father of the House of Commons," has been recorded in all the newspapers. His handsome residence, Margam, and its delightful surroundings, have been described in this Journal, and instructive matter on various

subjects has been derived from the gardens and communicated to our pages by Mr. J. Muir. When visiting Margam we were pleased to hear so much that was good about Mr. and Miss Talbot. Just and generous to tenants, and considerate and kind to servants, they were beloved by all. Miss Talbot, we believe, is the inheritor of the immense wealth of her father, and her pleasure in gardening being great, there is reason to hope that Mr. Muir will not be restricted in his work through the great change referred to.

— A TELEGRAM to a London daily paper announces the DEATH of Mr. Peter Henderson, the well-known florist and seedsman of New York, which took place on January 18th of influenza. "He was born at Pathhead, near Edinburgh, in 1823, and came to America at the age of nineteen, and built up the immense business which has made him famous throughout the country."

— ROYAL HORTICULTURAL SOCIETY.—The following gentlemen are recommended for retirement from the Council for the ensuing year:—Messrs. J. R. Bourne, W. Coleman, and A. H. Smce; and the names of Fellows recommended to fill the vacancies are Messrs. E. A. Hambro, N. N. Sherwood, and Martin R. Smith. The officers recommended by the Council are Sir Trevor Lawrence, Bart., President; D. Morris, M.A., F.L.S., Treasurer; Rev. W. Wilks, M.A., Secretary; and Messrs. George Deal, W. Richards, and Harry Turner, Auditors. The annual meeting will be held on February 11th.

— WARE AND DISTRICT HORTICULTURAL IMPROVEMENT SOCIETY.—A successful meeting of this Society was held on the 13th inst., the Rev. A. E. W. Lofts in the chair. Some excellent Primulas, Roman Hyacinths, Ferns, Primula obconica, and Grapes were staged, which added to the interest of the meeting. A paper on Adiantums was read by Mr. H. A. Smith, illustrated by living and dried specimens. A slight discussion followed, and the meeting ended with the usual votes of thanks.

— THE opening meeting of the spring session of the READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION was held at the usual place on Monday evening last, when a large number of members assembled to hear a paper on "Salads all the Year Round," by Mr. Chas. Hott, the able gardener from Wokefield Park. Mr. T. Turton occupied the chair. The subject was treated throughout with considerable ability, and the discussion that followed proved how highly it was appreciated by the members. The Association is rapidly increasing in numbers, and there is every prospect of a successful session.

— THE STOTT INSECTICIDE DISTRIBUTOR.—We are informed that the inventions of Mr. S. H. Stott, insecticide and liquid manure distributors, have been taken over by a Company. This undertaking was registered last Friday with a subscribed capital of £10,000. The directors are Mr. Frank Hollins, J.P., Mr. S. H. Stott, and Mr. Clapham. At the monthly meeting of the Preston and Fulwood Horticultural Society, held on Saturday evening, a very warm tribute was passed to the inventor anent his machines, Mr. Stott having since received the following, signed by the Secretary of the Society, Mr. John Atherton:—"I am pleased to inform you that at a crowded meeting of the members of our Society held on Saturday evening, it was proposed by the Vice-President, and carried unanimously, that a first-class certificate be awarded you for your insecticide and liquid manure distributors, and which I am instructed to forward to you in due course." The Stott insecticide distributor will probably be tried at Chiswick during the ensuing season.

— MUSHROOM BED REFUSE.—The remarks of "Mushroom," page 556, last vol., induce me to give my method of dealing with this material, not that I think it will be of benefit to your correspondent, but it may be to others who, like myself, have the charge of poultry and other live stock. I find nothing better for laying on the floor of the poultry house than dry mushroom bed refuse. Like dry earth, it possesses considerable deodorising power, and if a layer is thrown over the floor twice or thrice weekly it may be allowed to accumulate for some time. When taken out it will be a more valuable manure than when it was put in. It should be used in the garden at once, or mixed with the manure heap, for if put into a heap by itself a brisk fermentation soon set in, and much of the ammonia it contains is given off.—T. S., *Henbury Hill*.

— THE following is the manner in which a London daily paper refers to the recent meeting of the ROYAL HORTICULTURAL SOCIETY:—"Fogs have affected English flowers as well as English people, judging

from the Show of the Horticultural Society at the Drill Hall, Westminster. Though there was a fine display of Ferns and 'Nepenthes Hybrids,' and even a fair show of Auriculas and Cypripedia, the early spring blossoms—Crocuses and Daffodils—looked as pinched and wizened as if they had been suffering from influenza, that to have pulled through at all is greatly to their credit. A rich violet Primula, 'El Spirito Sancto'; a 'Cella Æthiopica,' or Ethiopian Lily, of snowy whiteness; and a 'Lælia Anceps'—white with brown heart, imported by the Liverpool Horticultural Company—were among the novelties." [The greatest novelty, we think, in connection with the meeting, was our contemporary's report.]

— FRUIT GROWING IN AUSTRALIA.—The latest report on the progress of Mildura gave the population as numbering 1200 persons. The necessary works for the efficient irrigation of 25,000 acres of land were nearly completed, and special steam machinery for ploughing and grubbing had already been obtained. In order to afford some idea of the work done on the settlement the following figures were published:—2600 acres cleared, 2200 acres ploughed, 2000 acres under fruit, Viue, and fodder crops; 24 miles of main channels completed, 30 miles of subsidiary ditches, 20 miles surveyed and in hand, 186 miles of fencing, and 4 miles of main pipes laid. Steps were being taken in order that Mildura might become a municipality, and nursery stock had also been successfully introduced, some of the settlers procuring supplies on their own account. Messrs. Chaffey Bros. had imported for contract planting more than 100,000 Vines, 20,000 Orange and Lemon trees, and 30,000 Olive truncheons.

— THE "tercentenary of the invention of the compound microscope" will be celebrated by a UNIVERSAL EXHIBITION OF BOTANY AND MICROSCOPY, to be held at Antwerp during the present year, under the auspices of M. Ch. de Bosschere, President, M. Ch. Van Geert, Secretary, and Dr. H. Van Heurck, Vice-President. It is proposed to organise an historical exhibition of microscopes, and an exhibition of the instruments of all makers, and of accessory apparatus and photomicrography. At the conferences the following subjects will be discussed and illustrated:—The history of the microscope; the use of the microscope; the projecting microscope and photomicrography; the microscopical structure of plants; the microscopical structure of man and of animals; microbes; the adulteration of food substances, &c. Communications are to be addressed to M. Ch. de Bosschere, Lierre, Belgium.—(*Nature*.)

— WATERING PLANTS.—In many places this important work is left to young men, who do not take sufficient interest in their work. The consequence is that many plants are overwatered, which ultimately causes death. I know a head gardener who has a man under him (and whom he is obliged to keep, as he is considered a trustworthy man by his employer), who is a very careless waterer, so that one class of plants has to be given up entirely and cannot be grown, and he knows the fault lies with the waterer, but he dare not say so. Every plant under his charge has a good watering on Saturday, so that it shall not want it on Sunday. He is a good man to work, but should not have charge of delicate or costly plants. Many plants suffer by want of water, but far more are killed from excessive waterings, especially so during the winter, when root action is almost at a standstill.—HECTOR.

— TUBEROUS BEGONIAS AS BEDDING PLANTS IN PERTHSHIRE.—About the middle of last August, while on a visit to Glassengall, the seat of Mrs. Wallace, near Dunblane, Perthshire, I had the pleasure of seeing two most brilliant flower beds. They were filled with two-year-old seedling Tuberos Begonias of the large-flowered varieties, and all shades of colour. The seed was saved from plants in pots in the conservatory. The plants in the beds were dwarf and robust, the flower stems strong and standing well above the foliage, showing the flowers to perfection, and arresting attention whenever they were seen. The other beds and borders in the flower garden were filled with the usual plants, but they failed to attract notice when the Begonias were in sight. I have before seen beds of Begonias of the small-flowered varieties, but owing to their drooping habit and small flowers they never made the same brilliant display as those at Glassengall. Seeing that they do so well as far north as Perthshire, and 300 feet above sea level, it is encouraging for those who are in a more favoured situation to give them a trial. I am so convinced of their superiority over the Pelargonium as a bedding plant, at least in cold and wet districts, that I purpose procuring a stock, and should they succeed half as well as those I saw at Glassengall the Pelargonium will be partially superseded. Mr. McCrea, the gardener—who is to be congratulated on his success with the Begonia

—told me that he grows them in a cold frame all spring, and plants out about the second week in June, taking care to give them plenty of room and air while in the frame, so as to have them robust when planted out.—GEO. GALLAHER, *Kilkerran Gardens*.

— *CELOSIA PLUMOSA PYRAMIDALIS*.—It is to be regretted that this beautiful plant is not more generally cultivated for autumn and winter decoration. For a few years past Messrs. Thomson, nurserymen, Birmingham, have devoted attention to the *Celosia*, and have grown fine specimens about 4 feet high, which have been well cultivated and flowered, but an effort was made to pot a lot of smaller plants in bloom for sale, and with great success. Even up to Christmas they had fine young plants to cut from, and during the autumn a number of well grown plants averaging about 18 inches in height in 48-pots. Their method of growing is this. To obtain specimens sow the seed in March in gentle heat, and repot and grow the plants in gentle heat until the end of May; then shift into larger pots, using a compost of loam, leaf soil, sand, and a little manure, taking care to give them the final shift before the plants show flowers. To have specimens in 48-pots sow early in July and keep the plants in 60-pots until they begin to show flower, then transfer into 48's. The *Celosia* is of easy cultivation, requiring similar treatment to Balsams, and their rich colours and graceful habit are strong recommendations. There are two varieties—*plumosa* and *spicata*, but the former is the best, and there are various shades of colour of each variety.—D. S. H.

— ROYAL METEOROLOGICAL SOCIETY.—The annual meeting of this Society was held on Wednesday evening, the 15th instant, at the Institution of Civil Engineers, Dr. W. Marcet, F.R.S. (President) in the chair. The Council in their Report congratulated the Fellows on the generally prosperous state of the Society, the past year's work, though not in any respect exceptional, having been thoroughly successful. The total number of Fellows is 550, being an increase of twenty-five on the previous year. The finances are improving, and the library is overflowing. Mr. Baldwin Latham, M.Inst.C.E., was elected President for the ensuing year. The retiring President (Dr. Marcet) then delivered an address on "Atmospheric Dust," which he divided into organic or combustible, and mineral or incombustible. The dust scattered everywhere in the atmosphere, and which is lighted up in a sunbeam or a ray from an electric lamp, is of an organic nature. It is seen to consist of countless moats—rising, falling, or gyrating, although it is impossible to follow any of them with the eye for longer than a fraction of a second. It is difficult to say how much of the dust present in the air may become a source of disease, and how much is innocuous. Many of the moats belong to the class of micro-organisms, which are frequently the means of spreading infectious diseases. Many trades, owing to their dusty nature, are very unhealthy. Dust, when mixed with air, is inflammable and liable to explode. After giving several instances of explosions due to fine dust in flour mills and coal mines Dr. Marcet referred to inorganic or mineral dust, and gave an account of dust storms and dust pillars in India. He then proceeded to describe volcanic dust, which consists mainly of powdered vitrified substances, produced by the action of intense heat. The so-called ashes or scoriæ shot out in a volcanic eruption are mostly pounded pumice, but they also originate from stones and fragments of rocks, which striking against each other are reduced into powder or dust. Volcanic dust has a whitish-grey colour, and is sometimes nearly quite white. Dr. Marcet concluded with an account of the great eruption of Krakaton, in August, 1883. The address was illustrated by a number of lantern slides.

— SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, IN DECEMBER, 1889.—Mean temperature of month, 37.0°. Maximum on 17th, 53.8°; minimum on the 29th, 19.6°. Maximum in the sun on the 10th, 80.4°; minimum on the grass on the 12th, 15.1°. Mean temperature of the air at 9 A.M., 36.4°. Mean temperature of soil 1 foot deep, 38.3°. Nights below 32°, in shade, eighteen; on grass, twenty-five. Total duration of sunshine, twenty-five hours, or 11 per cent. of possible duration. We had seventeen sunless days. Total rainfall, 1.36 inch. Rain fell on thirteen days. Average velocity of wind, 8.7 miles per hour. Velocity exceeded 400 miles on two days, and fell short of 100 miles on eight days. A dull, calm, and rather dry month of about average temperature; only one fall of snow, and that did not lie long. Observations during the year 1889, 56 feet above mean sea level.—Mean temperature, 47.8°. Maximum on the 2nd of June, 83.6°; minimum on the 4th of March, 16.0°. Maximum in the sun on the 2nd of June, 135.8°; minimum on the

grass on the 13th of February, 0.6°. Mean temperature of the air at 9 A.M., 47.9°. Mean temperature of soil 1 foot deep, 48.3°. Nights below 32°, in shade, 73; on grass, 147. Total duration of sunshine, 1086 hours, or 25 per cent. of possible duration. We had ninety-two sunless days. Total rainfall, 25.71 inches; maximum fall in twenty-four hours on the 8th of March, 1.62 inch. Rain fell on 180 days. Average velocity of wind, 8.9 miles per hour. Velocity exceeded 400 miles on thirty-one days, and fell short of 100 miles on ninety-six days. Approximate averages for the year:—Mean temperature, 48.2°; sunshine, 1243; rainfall, 25.10 inches.

— THE WEATHER OF 1889.—The year has been, on the whole, a normal one except for a rather persistent deficiency of sunshine. The winter and early spring were cold, though without any exceptionally severe weather; then followed two warm months of May and June, which in turn were succeeded by a cold period lasting to the end of October. November was mild and December of about average temperature, the result being that the mean temperature for the whole year is a few tenths below the average. The total fall of rain is just about equal to the average; the largest excesses were in March and May and the largest deficiencies in June and November. April was also a wet month, while September and December were dry ones. There were only two falls of more than 1 inch in twenty-four hours; both in March. Sunshine was very deficient, and the only month in which there was an excess was June. Only 1086 hours were recorded in the year, which is just a quarter of the time the sun is above the horizon, and is 157 hours less than the average of the previous eight years.—JOSEPH MALLENDER.

— *The American Florist* announces the recent death of Mr. JOHN HENDERSON, and states that "With him horticulture loses one of its noblest representatives, loved and honoured by all who enjoyed the privilege of his friendship. Mr. Henderson was born in London, England, December 5th, 1818, where he received a classical education, taking a prize in Greek scholarship at the age of fifteen. He came to America in 1856, and settled in Flushing, N.Y., which continued to be his home until 1888. He soon became an authority in horticulture making a specialty of Roses, and is also author of a standard work on grasses. He delivered the first horticultural lecture ever given in the Cooper Institute, for which he received a silver medal. He was a life member of the New York Horticultural Society and the American Institute, constantly officiating as judge at the exhibitions of both bodies, and was also prominent in the Society of American Florists and Nurserymen's Association. He retired from active business last year. Mr. Henderson was an accomplished linguist, speaking four modern languages with fluency, apart from his acquaintance with the classics. Another account in the same paper says, "Mr. Henderson came to this country with a few hundred dollars in his pocket, the remnant of a large fortune lost in a disastrous business enterprise. He came to Jersey city and began business in a small way in forcing the finer kinds of vegetables for the New York market, a business of which he knew nothing, but his energy and strong common sense soon enabled him to equal and surpass most of his contemporaries. He gradually drifted from this business to that of florist, where he was more at home, for his training in his father's firm of E. G. Henderson & Sons, Wellington Road, London, had made him an adept in all florist operations, so that by the time he had been in business five years he became noted as growing the best plants and flowers sent into the city of New York. Although like most business men, he had reverses, yet he successfully weathered them all, and two years ago, having amassed a fortune, he sold out his immense Rose-growing establishment in Flushing, N.Y., to his manager, Mr. Chas. Anderson. As a man no one stood higher or gave a greater dignity to our profession than John Henderson. He combined the educated polished gentleman with the strong practical sense of a business man. Modest and unassuming to a fault, there are few men whose memory will be longer revered than that of our friend who has just passed away."

RÛG, NORTH WALES.

READERS of the Journal who are at all acquainted with Wales or Welsh history will at once recognise in the name of the hon. family of RÛg—"Wynn" one of the oldest and most honoured of Welsh names, and as he becomes the holder of such, the Hon. C. H. Wynn has elected to dwell in a spot closely associated with and surrounded by memorials of some of the most important events and scenes in the past history of Wales. In this neighbourhood did the famous Welsh prince, Owain Gwynedd, give meet to Henry II. on the monarch's incursion to subdue the Cymric spirit; and here also did Owain Glyndwr assemble his troops, unsubdued still, to go forth to meet Henry IV. More peaceful

and more honourable too, has a more recent Royal visit been, when our gracious Queen passed through the district and received a far heartier, though not perhaps warmer, welcome from her loyal subjects in Gwyllt Gwalia than that accorded the above-named monarchs. On the occasion of the recent visit just referred the Lord of Rûg was one of the most influential of Her Majesty's Reception Committee. From his renowned gardens also Her Majesty was presented with a magnificent basket of fruit that has become famous from the many eulogies bestowed upon it.

The mansion is reached by the Holyhead Road from Corwen over the picturesque river Dee, the haunt and delight of anglers. It is less than two miles from the L. and N.W. and G.W.R. joint station, and has two approaches from the Holyhead and Ruthin roads respectively. The iron entrance gates, all handwork and a considerable age, are very fine pieces of workmanship. The land in the vicinity of the hall being somewhat low lying necessitated that it should be on a raised platform or terrace. The surroundings are well furnished with ornamental trees and shrubs, and the park throughout is finely wooded, and contains splendid specimens of Oak, Elm, &c., one especially noteworthy being known as "King of Rûg Oak." Among the many hardy plants in the

many beds and borders of the usual summer bedding kinds. The broad walk that runs through this garden from the hall to the kitchen garden makes a splendid promenade. Leaving this we enter the kitchen garden a well managed one too. On three sides are walls, which are furnished with Plums, Cherries, Pears, and a few choice Apples, mostly young trees, in a border 12 feet wide. These, in common with espalier and pyramids in the squares, give a good account of themselves generally, and their produce is not unknown on the boards of our leading exhibitions. Mr. Bennett, as a rule, musters a dish of Plums in good condition for a collection of fruit at the Liverpool autumn Show, about the third week in November.

The fourth side of the garden is faced by a range of glass structures, No. 1 being a Peach house (iron), a good roomy house, with Peaches Royal George and Barrington, and Nectarines Pine Apple, Lord Napier, and Violette Hâtive, all beautiful trees. They are evidently well cared for. No. 2 is a companion structure where Black Hamburgh, Foster's Seedling, Madresfield Court, and Gros Colman Grapes are grown in inside borders to perfection, and would be an argument in favour of inside borders but for the fact that all the other Vines are grown in outside borders and do equally well. Mr. Bennett adopts an original



FIG. 11.—RÛG, NORTH WALES.

extensive pleasure grounds that do well, the Rhododendrons might be mentioned; they flourish exceedingly well, so do many of the flowering shrubs. There is also a splendid collection of hardy bulbs throughout the shrubberies. The accompanying view (fig. 11) will afford a better idea of the beauty of the lake and its banks than my pen can do. Ornamental bridges spanning the water lead to the chapel in the grounds, and not far from the chapel is St. Sulien's Well, interesting to antiquarians. The church at Corwen is dedicated to this saint. Adjoining the mansion is a lofty conservatory, where specimen Tree Ferns, Palms, &c., find a permanent home; miscellaneous flowering plants afford a brilliant display beneath the graceful drapery of various climbers that grow luxuriantly and adorn the upper regions of the house.

Roses do here remarkably well in beds devoted to them, and one long row of climbers trained on wires is quite a feature. Behind this there is a most interesting border devoted to the now popular but long-neglected hardy perennials. Here from early spring until late autumn there is a good floral display, commencing with spring bulbs, and continuing with Pyrethrums, Pæonies, Phloxes, Asters, &c., until autumn bulbous plants again make themselves conspicuous. In the front of the Rose trellis is another border of equal length, which is annually carpeted, and affords relief to the masses of colour in the

and very wise method with most of his inside borders. After making his borders good in spring he places pebbles or roundish stones closely together on the soil, or manure where used, and thus where pots have to be stood or trampling to be done the border does not become sodden, and when watering also, instead of a puddle the house has a clean and tidy appearance; and, again, where exposed at all this method prevents evaporation and encourages the roots upwards, as will be seen by removing a stone when the trees are in action. A small but pretty and useful fernery is entered from the back of this house. Ferns for cutting purposes are grown densely on walls, an arrangement that saves pot plants, and is on that account a consideration where the demand is great. No. 3 is the late vinery, the principal sorts are the Alicante, Lady Downe's, and Muscat of Alexandria. No. 4 is also a vinery. Here Black Hamburgh is found in company with Buckland Sweetwater, Duke of Buccleuch, and Alnwick Seedling. The latter is a favourite sort, and seems to be growing in favour generally. All methods of pruning and training are adopted by Mr. Bennett, and all successfully. As we pass onward by a very useful heated lean-to pit used for forcing Strawberries, we come to what was recently a Peach house, and is now being converted into a Fig and Rose house. Figs to be grown on back wall, and Tea Roses in pots in front to meet the demand for the popular flower. The next is a span-roofed stove

containing table plants, winter flowering plants, such as Poinsettias, and planted out in centre bed are some capital Gardenias.

Outside the kitchen garden is another block of houses, No. 1 range being newly built, consisting of a Camellia house and stove—a fine lofty structure 75 feet long and 20 feet wide, well adapted for large specimens. Camellias are planted out in the centre bed, slate stages on the sides for Azaleas. A fine specimen of *Todea superba* is looking its best in this house, and in the adjoining compartment are some fine specimens of Crotons, Palms, *Eucharis*, and *Nepenthes*. There are also Water Lilies and a few *Oreheids*. The paths in this range are of cement, possessing the merits of being comfortable, durable and clean. Cucumber and Melon houses we pass on our way to the Pine stoves. Here we find this family represented by Queen, Prince Alfred, Smooth Cayenne, and a few Charlotte Rotbsebild. Pine culture being one of Mr. Bennett's foremost acquirements, it is needless to say that they are in splendid condition. Ranges of heated and unbeated and dung frames all doing good service, as testified by the appearance of their several occupants, complete this block, but facing it on the kitchen garden wall is a new lean-to house for the cultivation of Pears, Plums, and late Peaches, all to be planted out, protection to these trees being necessary, the climate not being quite what a gardener would desire. Under such conditions it is all the more credit to produce in all departments, in and out, such favourable results as are here obtained. Nor are the results, like the proverbial light, hidden under the bushel. Encouraged by the enthusiastic patrons of horticulture, the Hon. Mr. and Mrs. Wynn, Mr. Bennett annually succeeds in giving account of himself with his Pine Apples, Grapes, and collections at such fixtures as Shrewsbury, Liverpool, summer and autumn. "May his hand not soon forget its cunning."—BRADWEN.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 14TH.

SCIENTIFIC COMMITTEE.—Present: D. Morris, Esq., in the chair, and Professors A. H. Chureb, H. Marshall Ward, Drs. Hugo Müller, M. T. Masters, Messrs. G. F. Wilson, W. H. Blandford, R. McLaehlan, F. Pascoe, Albert Michael.

Seakale Roots.—Professor Ward reported that the specimens submitted to him at the last meeting were affected with the slime-fungus (*Plasmodiophora*), a fungus which does great damage to the roots of Cruciferous plants.

Canker in Apple Trees.—The same gentleman reported on the specimens referred to him at the last meeting, but which presented no unusual features.

Aeari of Sugar-cane.—Mr. Michael reported on mites affecting Sugar-canes in Barbados. Contrary to anticipation, the aearoids belong to the family Oribatidæ, and either to the genus *Notaspis* or to *Damaeus*, having the appearance of the former, while the internal anatomy is more like that of the latter genus. The species is allied to the English *N. lucorum*, but is probably undescribed. The creatures in question are strictly vegetable feeders, but have not hitherto been considered as inflicting any material damage to living flowering plants, being found more particularly on moss lichens. Mr. Michael recommended that specimens of the infested cane slightly moistened, with the living *Notaspis* on them, should be put into a tin box, sealed down to prevent drying, and thus forwarded in a suitable condition for further examination; other *Aeari*, of the genus *Tarsonymus*, and of extremely minute size, are known to be injurious to Sugar-cane. The species of *Damaeus* are found under the bark of trees. Judging from analogy only, the mites in question would not seem likely to do much injury to living canes.

Dactylopius (Mealy Bug).—Referring to a communication made to the Committee on December 10th, Mr. Morris now read a letter from Professor Riley on the use of rosin washes for bark lice. "If," says Mr. Riley, "the insect is a *Dactylopius*, the Alexandrians cannot do better than use one of the rosin washes with which we are spraying *Jeerya* so successfully in California." The following extract from "Insect Life" contains a good formula for the purpose:—

"*Rosin Wash for Red Scale*.—In accordance with instructions, Mr. Coquillet has been making experiments with this wash against red scale (*Aspidiotus auranti*), and after twenty different tests made with various preparations, from July 17th to August 8th, the one which gave the best results was found to be composed of rosin, 20 lbs.; caustic soda (70 per cent. strength), 6 lbs.; fish oil, 3 lbs.; and water to make 100 gallons. In preparing this wash the necessary materials were placed in a boiler and covered with water, and then boiled until dissolved, and stirred occasionally during the boiling. After dissolving, the preparation was boiled briskly for about an hour, a small quantity of cold water being added whenever there was danger of boiling over. The boiler was then filled up with cold water, which mixed perfectly well when added slowly and frequently stirred. It was then transferred to a strong tank, and diluted with water to 100 gallons. Neither the leaves nor the fruit was injured, while a large proportion of the scales were destroyed. Those which escaped were either on the fruit or the under side of the leaves. The cost of the wash is 80 cents. per 100 gallons, or four-fifths of a cent. per gallon. An Orange tree 16 feet tall by 14 feet in diameter was given 14 gallons. This, however, seems to us to be an unnecessarily large amount, but upon this basis the cost of spraying per tree is 11·2 cents."—(From "Insect Life," Oct., 1889, p. 92, U.S. Department of Agriculture.)

The Winter Moth.—Mr. Wilson called attention to a communication

in the *Hereford Times* of November 9th, 1889, as to the efficacy of greased bands as a check to the insect, and wherein Mr. Cranston says:—"I consider that the greasing process which is being adopted is injurious to the bark of the trees, especially to young trees. To the older trees it may possibly not do much harm, but I believe the old plan of painting the trunks of the trees with a solution of quicklime is the best. Some use soot with the lime, but I don't know that the soot is of much consequence except to dull the white glare of the lime. The painting should be done in the autumn."

Mr. McLaehlan pointed out that the proposed trap to be affixed to the lamp-post, in the case of suburban fruit plantations, would be practically useless, as only the male insects would be thus captured, the females being nearly destitute of wings, and incapable of flight. All attempts at stamping out the winter moth should be directed to the destruction of the females, which are capable of depositing eggs for many generations in succession without the intervention of the male. The capture of myriads of males would not have the slightest appreciable effect on the fertility of the untrapped females.

Monstrous Cypripediums.—Dr. Masters showed drawings of two *Cypripedia*, in one of which the three sepals were separate, as in most *Oreheids*, whilst in the others there was an adhesion between the median sepal, the lateral petal on the left side, and the lateral sepal on the same side, the adhesion of these parts being accompanied by corresponding adhesion of the labellum to the right lateral petal. The median stigma, G, 1, of the Darwinian notation, was also petaloid.

Keteleeria Davidiana.—Dr. Masters showed a cone sent by Dr. Henry to Kew, from Yebang, and which has special interest as being intermediate in character between the Spruces (*Picea*) and the Silver Firs (*Abies*). It is congeneric with *Keteleeria Fortunei*, a tree introduced to this country from China, but which is too tender for general cultivation.

It was announced that the next meeting will be held on Feb. 11th, after the annual meeting, and therefore possibly a little later than the usual hour, 4 P.M.

HALL FOR HORTICULTURE.

WE are very pleased to see you are giving publicity to suggestions as regards a hall for horticulture. After reading the various comments respecting it many must have been surprised at the wide difference of opinion as to the best method of attaining the object in view. Dr. Masters, in reviewing our circular, which proposes to solicit donations from the wealthy who have horticulture at heart, remarks:—"Like our friends we too hope to see the day when we shall have 'a hall worthy of our great nation,' and one which shall be available not only for the meetings of the Royal Horticultural Society, but of all the special societies, of the library, of the Horticultural Club, and of the charitable societies connected with horticulture. This has been a dream for many a long year, but when we see the proposal being sent broadcast we begin to hope the dream may be fulfilled." Our friend, Mr. Hibberd, says if our suggestions are carried out it will be a mockery, delusion, and a snare, and almost commands his friends not to have a hand in such an awful and dangerous work, yet the very same means we suggest are adopted to build nearly all our churches, chapels, and many other public buildings; and how your readers will understand and reconcile the statements coming from two such distinguished men is beyond our comprehension. However, we are delighted to think that we have been the means of publicly uncovering the light which that gentleman (Mr. Hibberd) has so long kept under a bushel, be it a rush-light or a star of the first magnitude yet remains to be proved. If he alludes to us as the friends who heard of his scheme, a sort of pseudo-joint stock market, co-operative store company, or some such kindred title, our friend was never more mistaken in his life. He should be sure and certainly show some evidence before putting forth such statements. Mr. Hibberd also speaks of a resolution he put to the meeting in 1888 and lost. A year before that in the side room at the Albert Hall we asked the Council not to finally engage the Drill Hall until the Fellows had time to consider its advisability; and again at the same meeting Mr. Hibberd mentions we proposed that we should ask the Crystal Palace Company. This was also lost; consequently here is far more ground for considering that his ideas were borrowed from us. He was present on both occasions, and probably heard us converse with many about procuring a site on the Thames Embankment. We think we are safe in saying very few projects can be pointed out that have had a happy time where capital had to be borrowed for horticultural purposes. Many have had, we know, a disastrous ending; no one knows the extent of such better than our friend, yet he almost makes it appear as if the Royal Horticultural Society is not doing as much good work and as deserving of sympathy as any of the Polytechnic institutions whose eleemosynary donations are to the extent of £50,000 a year in London.

Our friend is so definite and determined on this point we are afraid if some well-wisher was to bequeath us for this hall a thousand or so in the same way as Mr. Davics, Mr. Hibberd would by his teachings be for immediately returning such donation, and saying it would lower the dignity and injure the very foundation of our Society. Every farthing to build this hall must be obtained by its own commercial pursuits, and of course be called "The Royal Horticultural Hall Trading Company Unlimited." The very thing, in our opinion, to destroy its charter, character, independence, and all purposes for which the Society is intended. However, judging from the several inquiries as to the sort of

building needed, our hopes are more and more strengthened that we shall have assistance from some amongst the great and wealthy of this country, and so place the Society in a comfortable and becoming building equal to those possessed by horticulturists in Belgium and America, to enable us to look up with pride and pleasure, and feel that the Society is advancing in the improvement and encouragement of the earth's productions.—H. CANNELL & SONS.

ON Tuesday, January 14th, I had an opportunity of discussing the proposal with several friends at the meeting in Westminster, and I am well satisfied with the tone that prevails amongst men who are at once leaders in horticulture and in great business undertakings. The hopeful spirit that now appears in the consideration of such a project contrasts strangely but pleasantly with the despondency that years of forbearance and vexation had engendered in the later days of the unfortunate occupation at South Kensington, when the R.H.S. exhibited symptoms that by some were mistaken for approaching dissolution. It was then foreseen, as it is now, that in the event of the old phoenix renewing its youth it would need a nest to sleep in and a sky to fly in; and it was neither this nor that man's hap to conceive the idea of a home for horticulture. But so far as the matter obtained casual attention, the general opinion appeared to be that the Society must provide for itself, and therefore must wait until rich enough. Whether wisely or unwisely, I certainly did at times urge that the Society itself need not be concerned about building and incurring debt; all it need do would be to pay a reasonable rent for a suitable place, and as for the rest, the commercial principle might be trusted in this as in other things. Messrs. Cannell & Sons profess to have originated the idea of a hall for horticulture, and I should be very sorry to damage their sense of satisfaction, and as I have made no such claim, there need be no conflict, save, indeed, as to the ways and means, for at that point I must leave them to form their party and develop their plans. But I will warn them in time that a sum of from £25,000 to £50,000 will be required for the thing that is wanted, and £1000, perhaps, might be, with good management and great effort, scraped together, and then—Well, beyond that they probably would not proceed, and the end would be, as Messrs. Cannell hopefully anticipate, "a disused church or chapel," to be "utilised so that the Society could call it their own." I have no ambition to appropriate the idea; Messrs. Cannell & Sons are, in respect of any possible purloining on my part, as safe as if they had kept their dignified ideas entirely to themselves.

It does not appear that in the whole of this great metropolis there is any such respectable centre for the association of men of science and lovers of such arts as horticulture may be honourably associated with, whether for corporate action in a common cause, or for their several separate labours, discussions, and festivities. The peculiarities of the negative case were forced upon the attention of the gentlemen who went forth to find a place of meeting for the R.H.S., and could find nothing better than the Drill Hall in Westminster. There are any number of places in which men may meet conveniently and with light enough for the display of plants, but there is usually a serious objection of no subtle nature, but flagrant and notorious. The case does not affect us solely; it is one of general public interest, and bears directly on the round of recreations that are in daily demand, and abundantly pay their way in proportion to their merit and the cleanness of the management. Establish a handsome hall in a spot commanding a constant flow of traffic; here initiate daylight occupations for the scientific, and evening entertainments for the people, and you will not fail of your reward, which will doubtless correspond with your deserts, and will crown good management with complete success. Our fortnightly meetings would soon acquire renown in a place reasonably adapted for them, and a flower show under the electric light, with suitable accessories, would do for horticulture what has never been done yet—we should outdo the "palmy days of Chiswick," minus the dreadful weather that first abolished Vauxhall and then applied the surplus of its savagery to the best flower shows of this nineteenth century. A thousand uses for such a hall would arise as it acquired a name and a place in the economy of society, and the life of the thing would be in its independence and respectability. As an arena for lions and lambs, as a home for the trapeze and the wire rope, as a mere shelter for so many drinking bars, it would be a failure first, and finally a disgrace and a curse. That it would fail if perverted from the purpose for which it is proposed cannot be doubted, and upon that assumption may be founded our expectation of success. We want a beautiful building, with sufficient space for half a dozen meetings to be held simultaneously, and a noble hall abundantly lighted both by day and night, with, perhaps, a bijou plant house, in which subjects requiring to be on the spot for a few days or more might be kept under observation, and flowered or fruited without disturbance or danger of transit at unseasonable times. The Weather Plant offers an example. It has been under operation for forecasting in a house in the R.H.S. Gardens at Chiswick, and has been seen by some dozen or score of persons only. In a conservatory on the Thames Embankment it would have been visited by hundreds, possibly by thousands.

The kind of institution I have in view should be somewhat of a costly affair, and the requirements of the R.H.S. should have direct and primary attention in the original design and its several details. It need not be said that under present circumstances the R.H.S. could not pay for such accommodation as it is proposed to provide, but it is a fair speculation that it soon will be able. In the meantime I wish this point to be kept in view, that the edifice suitable for horticulture will be suitable also for many other purposes that may be honourably and use-

fully associated with horticulture. There is no such hall as we require, but there are a thousand uses for such a thing from the moment you have established it. To be safe against perils that are better understood than explained, you have but to adopt as the foundation of the business that the edifice shall be used only for such purposes as consist with the advancement of science, art, and literature, and all the rest will turn on management.—SHIRLEY HIBBERD, *Kew*.

[We are authorised to say with regard to the suggested Hall that the matter has been before the Council for the greater part of the past year. A Committee of the Council was appointed in the autumn for the purpose of elaborating a scheme, and they hope soon to be able to bring something tangible before the Fellows and the general public. It will then altogether depend on the amount of financial support which the Council receives whether the project be carried to a successful issue or not.]



CHRYSANTHEMUMS COMMERCIALLY.

WHEN the varieties are well selected, the plants well grown, and the time of placing the crop in the market is well chosen, Chrysanthemums pay fairly well. They are essentially a catch crop, because they occupy house space which otherwise would in all likelihood be unfilled, while they have the further advantage of brightening an otherwise dull period, and after having fulfilled this duty may be consigned when fresh to the commission agent at a profit, instead of going to the compost heap when decaying, at a loss. Gardeners too often make the mistake of sending any kind of produce to market which is not wanted or not good enough for home use. True, the quality offered to the public by shopkeepers and the prices charged for the same might lead to the conclusion that anything is good enough, but when it comes to be a question of getting rid of produce at a fair price in the glutted market, then the best variety and the best quality must go together.

In a private garden it is, of course, impossible to select too closely for Chrysanthemums are, like Roses, possessed of great individuality, and this indeed is one of their greatest charms. But while growing a comprehensive selection, it is at the same time judicious to cultivate merely one or two each of these and increase the number of profitable sorts, which are also the best of decorative plants. Ahead of all stands Elaine, and if it were merely a question of growing the purest and best white, then we might be well satisfied with this alone; but in some seasons it fails to set its buds, and consequently it would be suicidal to depend on it alone. In some seasons, also, it is earlier than other sorts, while, as a rule, some of the earlier varieties are of value before this is in. Next to the above comes Mrs. G. Rundle. Good blooms of this sell well, and the crop is always large, which is, of course, a point of importance. Fair Maid of Guernsey, owing to its lateness and great profusion, is also valuable, though not so good as either of the above. Lady Selborne is rather early to be of much value, but it carries such an enormous crop of flowers that it is well worth growing. Of yellow varieties, Peter the Great is of great value. It may be had either in midseason or late, and for colour, size, shape, and profusion of bloom it leaves nothing to be desired. Mr. Glenny and Mrs. Dixon are also good. Mr. Bunn is a fine early sort, but not so good as Mrs. Dixon, and very free and good is Elsie, which, moreover, stands well. Of coloured varieties, Source d'Or is in all respects fine. Of a darker shade is Reverie, also fine, and earlier is W. Holmes. I have not found the Teck family do well in the north. Some often can be had as late, and are much more free. Worth growing also are Felicity and Mrs. Forsyth as midseason whites; while Lady Margaret, though not a free flowering sort, throws very fine blooms very late in the season.

Of extra sorts of yellows, Chevalier Domage is fine, and Phoebus and Golden Queen may be profitably grown. Annie Lowe, though very light in shade, promises well, and the yellow Ethel should also be grown. There are several good coloured sorts, thus Cullingfordi, L'Ebouriffée when well grown, very fine as a late sort is Val d'Andorre. But it is important to note that a dozen blooms of one sort and a dozen of another are not wanted so much as many dozens of two or three good sorts at a time.

It will not do to allow the plants to grow without giving every attention to their wants and the requirements of the variety. Thus it will be found that cuttings selected and rooted in November or December will not only yield more blooms than spring struck cuttings, but the quality of the blooms will be better. Then an early propagated plant can be pinched early in its career, and three or four shoots produced instead of one, without in any way affecting the quality of the blooms. Another point of importance is to thin out the weak shoots which break from the main stems towards autumn. These weak breaks never produce good blooms, and they affect the others injuriously, while their removal has a beneficial effect on those left. From three dozen to fifty blooms is a good crop to a plant, and the power of a particular plant to develop a given crop must be estimated so as to thin to the desired number. And again, when the buds are set, the thinning of these must be seen to, so that

every bloom may be fully developed, and with a long, clean stem when cut. Blooms thus prepared are sure to be above the average, and may be depended upon to bring a remunerative price. But there are occasions when it is unsafe to put even good blooms on the market. The past season was a case in point. Fairly good blooms were selling at 3d. a dozen, and much was unsaleable at any price. The only course open in such circumstances is to keep the bloom. Varieties differ considerably in their keeping qualities. Thus, Lady Selborne keeps pure and good for a long time; Elsie also keeps well, the flowers changing to white with age, but Elaine rapidly changes to pink, and the Rundle family have the same fault. When it is expected that flowers will be over-plentiful, no better thing can be done than just to keep ventilators open night and day, and to shade from sunshine. Every day saved thus makes the chances of keeping greater in an increased ratio, for by the end of November buds unfold very slowly indeed unless fire heat is applied. If flowers are open, then the only thing that can be done is to shade heavily, to keep a dry atmosphere, and to give as much air as possible, giving fire heat only in very damp weather and during frost, but always with ventilation. Ten days to a fortnight can be gained in this way, and when the flowers are quite fresh they may be cut and kept in a dry, cool room for a few days longer; but, if old, they must not be so kept. A fresh bloom keeps well for two to three weeks, while an old bloom will not last as many days.

Chrysanthemums are easy to pack, and travel without damage if judiciously handled. A very good plan is to bunch into sixes or dozens with the blooms facing one way, and each one clear of its neighbour, so that no one presses on the other. These, again, may be further bunched into six dozen lots, always keeping them flat. Boxes just deep enough to hold one layer are best, and about twenty-four dozen in a box. A sheet of paper is laid in the bottom of the box; on this the flowers and any open spaces filled with soft bracken fern, then another sheet of paper on the top, and the box is ready for the lid, which must not be nailed, but tied. If possible, one variety or one colour should occupy each box.—B., *North Britain*.

REFLEXED AND ANEMONES—OLD AND NEW.

EVIDENTLY, while for show and exhibition purposes large blooms will still be the grand aim, everything else being equal, large numbers think the vigorous, free growing, and floriferous varieties, though small, should not be wholly neglected. Of this character

Julie Lagravère (Salter), more than thirty years in existence, and still one of the richest crimson reds, may be taken as an illustration. There are many in the Pompon section, such as *Mdlle. Marthe*, *Sœur Melanie*, and *Mdlle. Elise Dordan*, often seen larger, still in the National Catalogue it is retained in the reflexed class. Comparatively small though it thus is, is there any who have won honour and fame with "Julie" as a specimen plant, or a telling object in a group, who would like to see it lost? Of the same attractive character, but usually small size, are *Phidias* and *Felicity*, rarely seen on an exhibition board, but very undesirable to lose from the still limited reflexed class.

Emperor of China.—As I am on this subject I should like to enlist some sympathy for my oldest Chrysanthemum acquaintance. I hardly care to remember how many years it is since I first saw it adorning the sunny wall of a cottage in the end of October, and yielding for weeks an endless profusion of perfect blooms. It competes with the *Christines* in hardiness. Indeed, I have seen both flowers and foliage frozen hard, and after a thaw go on growing and blooming seemingly none the worse for the experience. I am sure Mr. E. Molyneux, who has generally a good word for outdoor Chrysanthemums, has seen very fine blooms, as no doubt have many of your readers. A great many years ago, in my early Chrysanthemum growing days, I sent the Editor some blooms cut from a south wall. I thought, like *Dominy Sampson*, "Prodigious!" and asked him if he ever saw anything nearly so good. He blandly assured me, however, that he had; but then warmly commended it, as I do now, with those already named, to any beginner who may wish a profusion of outdoor blooms for cutting from. The same generally applies to all reflexed.

Miss Annie Lowe (Anemone).—I have had two forms and colours of this from two most respectable firms, and both fairly resembled the sporting parent *Lady Margaret*. One had a triple row of guard florets, full centre, and was light yellow in colour; the other a single row of petals at the margin, not so full disc, and was pale yellow generally. It is a good thing.

James Weston (Anemone).—Introduced direct from China, as most of the good things are, I had late, and is only now in bloom. Should be very effective as a show flower. The guard petals are long, drooping, and pure white, while the disc is full and bright yellow. It is this combination of colour that makes this very fine new variety so welcome an addition.—W. J. MURPHY, *Clonmel*.

SHEFFIELD AND WEST RIDING CHRYSANTHEMUM SOCIETY.

A VERY interesting and instructive discussion initiated by the Committee of this Society was obligingly sent to us some time ago, and has not been deprived of any of its value by unavoidable delay in its publication. Mr. W. K. Woodcock spoke first on "New Chrysanthemums: their Habit, Height, and Fitness for Exhibition Blooms," and Mr. James Udale addressed the meeting on "Damping of Blooms."

Mr. Woodcock said he would commence his remarks by referring to the Japanese varieties. The French raisers have sent over such numbers of new varieties, many of which have turned out worthless, that they are beginning to ruin their own trade by it, and causing the English

growers much trouble and inconvenience in selecting the best. The first place among Japanese must be given to Mrs. Alpheus Hardy. It came from America, though it was originally an introduction from Japan, and has been shown by Mr. Ware. It has been well illustrated in the *Journal of Horticulture*—the best and most faithful representation. The colour of Mrs. Alpheus Hardy is white, and it is undoubtedly a most beautiful and valuable flower. I was much astonished last season at the demand for *Avalanche*, another beautiful new white Japanese. It was hardly to be had, and all the leading men had great difficulty in keeping a stock in hand. There must have been thousands of *Avalanche* sold last season.

Etoile de Lyon is one almost certain to be in great demand during the coming season. I have heard it described as a beast, but it has a very striking effect in a large stand of Chrysanthemums. The demand at the present day is for large flowers, the larger the better. In *Etoile de Lyon* we have the largest Japanese that can be shown of a presentable character. There may be some doubt whether it or an older variety, W. G. Drower, claims the pre-eminence for size, but I think it is the largest flower we have yet had. Before it is fully expanded the flower is very pretty, and of a very bright pink. It afterwards takes a dirty white appearance. As an exhibition flower it has a very telling effect on a large board. *Sunflower*, which was sent out last year, has proved itself an exceedingly good variety, and has given general satisfaction during the past season. It is a bright golden yellow, and will certainly take front rank among exhibition flowers. *Mdlle. Louise Leroy*, a fine white Japanese, grows to a moderate height, and produces a well built up deep flower, something after the character of *Florence Percy*.

George Daniels is one of the most pleasing flowers I have seen among the new ones. It is a dwarf grower, short-jointed, and sturdy, much after the character of *Avalanche*, a habit of plant which deserves to be encouraged in our new varieties. The colour of the flower is a pleasing soft shade of pink, of good size and form. The outer florets turn up slightly, and give the bloom a somewhat cup-shaped appearance.

Sarah Owen can scarcely be called a new variety. During the present season it has been on most exhibition stands I have seen exhibited. Its parentage will give it credit for being a good flower. It was raised as a sport from *Madame J. Laing*. Mrs. Falconer Jameson is one of which great results have been expected during the present season. It has dark green foliage, large and deeply notched, of dwarf habit like *Avalanche* and *George Daniels*. It produces a large bloom, but this year it has not flowered well. I have only seen one good bloom exhibited. Plants were much in demand at the beginning of this season, and as a consequence it was propagated rapidly. I think we may look for better results next year. The bloom is similar to *Val d'Andorre*, but is larger and more compact. Its greatest beauty is in its foliage and habit of growth.

Stanstead Surprise is in very few hands yet. There is no doubt from what has been seen of it that it will be of great value to exhibitors. It is quite distinct in appearance and character. The ends of the florets have a pleasing sort of pearly white tint, and also they have a curly character, which with the white tip gives a pretty appearance to the bloom generally. Growers have not had the best opportunity yet to produce the best plants and large flowers. With another year's growth a really first-class flower will be produced. It is evidently one of the earliest, and exhibitors will have to treat it in the manner they do other early varieties. It comes with *Comte de Germiny* and *Mdlle. Lacroix*.

Album fimbriatum was sent out by Messrs. Laing. There were many flowers shown this year, and it is a first-class variety when seen in good character. It is not so pure a white as some others, but still it is a handsome bloom, very fine florets, full, narrow, almost quilled at the end, which gives it the character of fimbriated. *M. Bernard*, which nearly all exhibitors have, is a most beautiful flower, and the colour of it is undoubtedly a great improvement upon *Madame de Sevin*, and is likely to oust that variety. It is a first-class front row variety, and is certain to attract and please everybody.

Thomas Stevenson is a reliable variety—a sport from the old variety *Criterion*. Everybody who has grown that variety knows what a good one it is; therefore a sport from it is certain to be valuable. It was shown at Sheffield for the first time last year for the purpose of gaining a certificate, but by some mistake was overlooked; but when shown at the Royal Horticultural Society's Committee meeting it was awarded a certificate.

Another variety which is bound to be useful is Mrs. S. Coleman, a sport from *Princess of Wales*. This is the most reliable and best of incurved varieties that can be grown. Any good sport from *Princess of Wales* is certain to be popular among exhibitors. Two of the best incurved varieties were introduced last year. There was scarcely a winning stand of twenty-four but what contained one or both of these—*Violet Tomlin* and *Miss M. A. Haggas*. The latter is a sport from Mrs. Heale, the other from *Princess of Wales*. *Violet Tomlin* is a most thoroughly distinct and beautiful flower. A splendid bloom was shown at Leeds; it was a model flower, fit to be present anywhere and in any company. The colour is distinct from anything we previously had in the incurved section. *Miss M. A. Haggas* does not come quite equal in form to *Violet Tomlin*, but takes after Mrs. Heale. It is of a bright yellow colour, and is bound to be valuable and take the place of the old variety *Jardin des Plantes*, which is difficult to get large and smooth enough to occupy a good position on the show board.

Mr. H. Shoemith has not appeared on many show boards so far, and has not produced first-class blooms. I am strongly of opinion that

it will do so. Exceptionally good in floret, it evidently has the build and character of Mr. Bunn. The plants seem to have lacked in stamina this year; that will only be owing to the fact of over-propagation last spring.

Amongst Anemones we have had many good varieties introduced. Madame Robert Owen is a most beautiful white flower, more beautiful than the long-time favourite Lady Margaret. James Weston is a good large bloom, useful for the show board. There are several other good Anemones, but I hope someone else will supplement my remarks on the best and newest introductions in Chrysanthemums of last year.

Mr. Hague, the Chairman, then invited discussion on the subject, remarking that they had been favoured with an able paper. Mr. Bacchus and Mr. Udale recommended Condor as a useful white Japanese, the latter observing that it was bold in character, broad in floret, and would certainly make a powerful exhibition bloom. He endorsed all that Mr. Woodcock said, he had given a very exhaustive list. There

passed to Mr. Woodcock on the motion of Mr. Ledger, seconded and supported by Messrs. Hardy and Broughton.

(To be continued.)

HOLBORN FAVOURITE MELON.

WHEN Mr. A. Pettigrew of Cardiff Castle Gardens describes a Melon or anything else as being good it may be taken for granted that it is something worth growing, for his standard of excellence is a high one. He is an expert grower of Melons, and we heard of a remarkable crop he had last year. Considering the fruits meritorious he sent a specimen to Messrs. Carter & Co. for comparison with others, and the firm appears to have been so impressed with the variety as, like the boy and the soap, they could "not be happy till they got it," though we are given



FIG. 12.—THE HOLBORN FAVOURITE MELON.

was one he should like to add called Buttercup; Veitch's, he thought, were sending it out. It was the prettiest yellow he had yet seen. It was a broad petalled variety, and very effective. Violet Tomlin he had seen grown to perfection, also Miss M. A. Haggas, one of the most powerful exhibition flowers. Mr. H. Shoemith is a good exhibition flower. Mr. Woodcock endorsed the good opinions expressed about Condor, which he had omitted to mention.

Mr. Bacchus, who represented Mr. Lambert, an exhibitor, impressed upon growers the desirability of securing the varieties mentioned. M. Bernard was superior to anything he had seen this year. He should advise exhibitors to secure five plants of Miss M. A. Haggas and three of Violet Tomlin.

Mr. James Harrison asked what was thought about Madame Baco. He really classed it as an Avalanche, only different in colour. It was a deep colour something grand, and had been his favourite. He had not heard any mention made of Stanstead White, which he considered a very good one that had done well with him. Mr. Molyneux said last year he did not think much of it. He said that Madame Baco produced a very good and pleasing flower, and if the first crown bud could be caught he did not know what it would be. A vote of thanks was heartily

to understand that Mr. Pettigrew did not send it as a new variety for sale. It is one of his improvements in Melons, and he describes it as follows in Carter's "Vade Mecum":—"Fruit of the largest size, roundish ovate; rind, lemon colour, heavily netted; flesh, greenish white; flavour, sweet, melting, and juicy; habit of plant, strong and vigorous; a free setter and a great bearer. It is one of the handsomest and best-flavoured Melons in cultivation, and was greatly admired by all who have seen it growing here." Accompanying that description is the illustration (fig. 12) that we are permitted to use in our columns.

EARLY TOMATOES.—The Tomato is now such a great and general favourite that many desire to possess it all the year round, and although it is difficult to secure a supply to this extent there need be no great gap in the circle, as the late ones are not quite over, and by sowing some of the earliest now new fruit may be gathered in March, or by Easter at the latest. The large fruiting kinds must be avoided for very early crops, and their culture at this time may be commenced wherever possible, as the fruit will be greatly valued on the table, and, if neces-

sary, remunerative in the market. From one to two dozen plants may be as many as can be accommodated thus early. These might all be sown and raised in a 6-inch pot, and they would grow rapidly in a temperature of 65° or 70°, but when the time came to pot them singly they would receive a check that would throw them back for a fortnight in their time of gaining maturity. To avoid this we sow each seed singly in a 3-inch pot, and then pot them without disturbing the roots or checking them in any way. Very little water will be required until the plants appear, and they should be watered sparingly till the leaves are formed and the pot begins to fill with roots. From the first keep them near to the light, as a short-jointed growth is always more fruitful and more easily managed than a spindly one. From 3-inch pots they are shifted into 6-inch, then into 8 or 9-inch pots; and these are quite large enough to produce the best early crops. We prefer using poor soil to induce dwarf growth and early fruiting, and supply with liquid manure freely after the fruit has formed.—K. G.

ROYAL HORTICULTURAL SOCIETY.

THE COMMITTEES.

THE arrangements for the year 1890 have already been announced, and the schedule is now issued, comprising the dates of meetings, Shows, and Conferences for the period named.

The following are the names of the members of the four principal Committees:—

SCIENTIFIC COMMITTEE.

Chairman.—Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.B., F.R.S., The Camp, Sunningdale.

Vice-Chairmen.—W. T. Thiselton Dyer, C.M.G., F.R.S., Royal Gardens, Kew; Professor M. Foster, Sec. R.S., Great Shelford, Cambridge; Maxwell T. Masters, M.D., F.R.S., V.P.L.S., Mount Avenue, Ealing, W.

Hon. Secretary.—Rev. Prof. G. Henslow, M.A., F.L.S., F.G.S., Drayton House, Ealing.

Baker, J. G., F.R.S., Royal Gardens, Kew.
 Blandford, W. H. F., M.A., F.E.S., 48, Wimpole Street, W.
 Burbidge, F. W., F.L.S., Trinity College Gardens, Dublin.
 Church, Professor A. H., F.R.S., Shelsley, Richmond.
 Darwin, Francis, F.R.S., Wychfield, Huntingdon Road, Cambridge.
 Dod, Rev. C. Wolley, Edge Hall, Malpas, Cheshire.
 Elwes, H. J., F.L.S., F.Z.S., Preston House, Cirencester.
 Frankland, E., F.R.S., The Yews, Reigate Hill, Reigate.
 Gilbert, J. H., Ph.D., F.R.S., Harpenden, Herts.
 Godman, F. Du Cane, F.R.S., 10, Chandos Street, Cavendish Square, W.
 Llewelyn, Sir J. T. D., Bart., F.L.S., Penllergare, Swansea.
 Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.
 McLachlan, R., F.R.S., Westview, Clarendon Road, Lewisham, S.E.
 Michael, Albert D., F.L.S., Cadogan Mansions, Sloane Square, S.W.
 Müller, Hugo, Ph.D., F.R.S., 13, Park Square East, Regent's Park, N.W.
 O'Brien, James, Harrow-on-the-Hill.
 Oliver, F. W., D.Sc., F.L.S., Royal Gardens, Kew.
 Paseoe, F. P., F.L.S., 1, Burlington Road, Westbourne Park, W.
 Plowright, C. B., F.L.S., 7, King Street, King's Lynn.
 Salvin, Osbert, F.R.S., Hawksfold, Fernhurst, Haslemere.
 Scott, D. H., Ph.D., F.L.S., The Laurels, Bickley, Kent.
 Symons, G. J., F.R.S., 62, Camden Square, N.W.
 Veitch, H. J., F.L.S., Royal Exotic Nursery, King's Road, Chelsea, S.W.
 Vines, Professor, F.R.S., Fairacres, Oxford.
 Ward, Professor Marshall, F.R.S., The Laurels, Englefield Green, Staines.
 Wilson, Geo. F., F.R.S., Heatherbank, Weybridge Heath.

FRUIT AND VEGETABLE COMMITTEE.

Chairman.—Sir Charles Strickland, Bart., Hildenley, Malton.
Vice-Chairmen.—T. Francis Rivers, Sawbridgeworth; John Lee, 78, Warwick Gardens, Kensington; R. D. Blackmore, Teddington.
Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.
 Balderson, H., Corner Hall, Hemel Hempstead.
 Barr, Peter, 12, King Street, Covent Garden, W.C.
 Bates, W., Poulett Lodge Gardens, Twickenham.
 Bennett, W., Rangemore Park Gardens, Burton-on-Trent.
 Bunyard, George, The Nurseries, Maidstone.
 Cheal, J., Crawley, Sussex.
 Cliffe, G., Shoreham Place Gardens, Sevenoaks.
 Coleman, W., Eastnor Castle Gardens, Ledbury.
 Crowley Phillip, Waddon House, by Croydon.
 Cummins, G. W., The Grange Gardens, Wallington.
 Denning, W., Heathfield Nursery, Hampton.
 Dunn, Malcolm, The Palace Gardens, Dalkeith, N.B.
 Fairgrieve, P. W., The Palace Gardens, Dunkeld, N.B.
 Ford, Sidney, The Gardens, Leonardlee, Horsham.
 Hogg, R., LL.D., F.L.S., 99, St. George's Road, Pimlico.
 Haycock, C., Goldings, Hertford.
 Hudson, J., Gunnersbury House, Acton.
 Lane, Fred, Berkhamstead.
 McIndoe, James, Hutton Hall Gardens, Guisborough.
 Moore, F., Blendon Hall Gardens, Bexley.
 Moss, A., 39, London Bridge, E.C.

Norman, G., Hatfield House Gardens, Hatfield.
 Pearson, A. H., The Nurseries, Chilwell, Notts.
 Ross, Charles, The Gardens, Welford Park, Newbury.
 Saltmarsh, T. J., The Nurseries, Chelmsford.
 Smith, James, The Gardens, Mentmore, Leighton Buzzard.
 Sutton, A. W., F.L.S., Reading.
 Veitch, H. J., Royal Exotic Nurseries, Chelsea.
 Veitch, P. C. M., The Royal Nurseries, Exeter.
 Watkins, A., Exeter Street, Strand.
 Warren, W., Worton Gardens, Isleworth.
 Weir, Harrison, Sevenoaks.
 Wildsmith, W., Heekfield Place, Winefield.
 Willard, Jesse, Holly Lodge Gardens, Highgate, N.
 Wright, John, 171, Fleet Street.
 Wythes, G., Syon House Gardens, Brentford.

FLORAL COMMITTEE.

Chairman.—William Marshall, Auchinraith, Bexley.
Vice-Chairmen.—J. Shirley Hibberd, 1, Priory Road, The Green, Kew; Maxwell T. Masters, M.D., F.R.S., V.P.L.S., Mount Avenue, Ealing, W.; Paul, George, The Old Nurseries, Cheshunt.
Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.
 Baines, Thomas, Fern Cottage, Palmer's Green, N.
 Barlow, S., Manchester.
 Burbidge, F. W., Trinity College Botanic Garden, Dublin.
 Blair, P. C., Trentham Gardens, Stoke-on-Trent.
 Cannell, H., Swanley, Kent.
 Castle, Lewis, Hotham House, Merton.
 Dean, R., Rane'agh Road, Ealing, W.
 D'Ombra, Rev. H. H., Westwell Vicarage, Ashford, Kent.
 Douglas, J., Great Gearies, Ilford.
 Druery, C. T., 25, Windsor Road, Forest Gate.
 Fraser, John, Lea Bridge Road, Leytonstone, E.
 Girdlestone, T. W., Sunningdale, Berks.
 Goldring, W., 52, Gloucester Road, Kew.
 Herbst, H., Kew Road, Richmond, Surrey.
 Hill, E., Tring Park Gardens, Tring.
 Holmes, W., Frampton Park Nurseries, Hackney, E.
 Ingram, W., Belvoir Castle Gardens, Grantbam.
 James, J., Farnham Royal, Slough.
 Jeffries, C., Boston House Gardens, Brentford.
 Kelway, W., Langport, Somerset.
 Leach, W. C., Aldbury Park Gardens, Guildford.
 Lindsay, R., Botanic Gardens, Edinburgh.
 Lowe, R. B., Ashbridge Gardens, Berkhamstead.
 May, H. B., Dyson's Lane, Upper Edmonton.
 Mawley, E., Rosebank, Berkhamstead.
 Molyneux, E., Swanmore Park Gardens, Bishops Waltbam.
 Nielson, G., Royal Gardens, Kew.
 Noble, C., Sunningdale Nursery, Bagshot.
 O'Brien, James, West Street, Harrow-on-the-Hill.
 Pilcher, Charles, 84, Ringford Road, Wandsworth, S.W.
 Pollett, H. M., Fernside, Bickley, Kent.
 Ross, F., Pendell Court Gardens, Bletchingley.
 Thomas, Owen, Chatsworth Gardens, Chesterfield.
 Turner, H., Royal Nurseries, Slough.
 Walker, J., Ham Green, Surrey.
 Williams, W. H. (Keynes & Co.), Salisbury.
 Wynne, B., 17, Catherine Street, Strand, W.C.

ORCHID COMMITTEE.

Chairman.—H. J. Veitch, F.L.S., Royal Exotic Nursery, Chelsea, S.W.
Vice-Chairmen.—J. Douglas, Great Gearies, Ilford; Maxwell T. Masters, M.D., F.L.S., Mount Avenue, Ealing, W.
Secretary.—James O'Brien, West Street, Harrow-on-the-Hill.
 Baines, Thomas, Fern Cottage, Palmer's Green, N.
 Ballantine, H., The Dell Gardens, Staines.
 Castle, Lewis, Hotham House, Merton.
 Crayshay, De Barri, Rosefield, Sevenoaks.
 Cookson, Norman S., Oakwood, Wylam-on-Tyne.
 Courtauld, Sydney, Bocking Place, Braintree.
 Dominy, John, 11, Tadema Road, Chelsea, S.W.
 Haywood, T. B., Woodhatch Lodge, Reigate.
 Hill, E., Tring Park Gardens, Tring.
 Latham, W. B., Botanic Gardens, Egbaston, Birmingham.
 Lawrence, Sir Trevor, Bart., M.P., 57, Princes Gate, S.W.
 Lindsay, R., Botanic Gardens, Edinburgh.
 Moor, F., Blendon Hall Gardens, Bexley.
 Philbrick, F. A., Q.C., Oldfield, Bickley Park.
 Pilcher, Charles, 84, Ringford Road, Wandsworth, S.W.
 Pollett, H. M., Fernside, Bickley, Kent.
 Sander, F., St. Albans.
 Schröder, Baron Henry, The Dell, Staines.
 Smece, H. J., Wallington, Surrey.
 Tautz, F. G., Studley House, Goldhawk Road, N.
 Williams, H., Victoria Nurseries, Holloway, N.

PRUNING BUSH FRUITS.—In gardens where bullfinches and other small birds are troublesome, these clearing off the buds in a wholesale manner, it is unwise to do much pruning in the case of Gooseberries

especially before the spring. Red and Black Currants are not often greatly interfered with, and these may be pruned when perhaps it is too cold to proceed with the pruning and nailing of wall trees. Red and White Currants produce their fruit principally from the spurs formed on the old wood. All superfluous young wood should therefore be closely spurred back, and any required for laying the foundation of a bush or for extension ought to be shortened back to about one-third of their length, this being the only means of securing sturdy well-furnished main branches. Always keep the centre of both young and old bushes open, and do not crowd the main branches. Black Currants produce fruit throughout the entire length of young shoots formed during the previous season. These, therefore, should not be cut back, but only thinned out, as much of the old wood as possible being cleanly cut out at the same time. If the branches extend too far, or the centre of the bush is weak, foreshorten—that is to say, cut back the old wood with any young shoots attached to a well placed inner growth. Gooseberries may be pruned very similarly to Black Currants, but as fruit is freely produced by both young wood and spurs on old branches, the former may be much more freely cut out, or even all removed, abundance of fruit, birds and weather permitting, emanating from the closely spurred branches. In any case the low under branches should be cut out, fruit produced near the ground usually being dirty and worthless. Now is also a good time to remove old Raspberry canes, the young ones being thinned out and duly trained or secured in whatever manner may be in vogue.—W. T. M.

BIRDS AND FRUIT BUDS.

YOUR correspondent "T. A. C." (page 54) complains of bullfinches stripping a Beurré Clairgeau Pear tree of its buds, and inquires if others have had a similar experience. I have often known Pear buds to be attacked by these birds, and as recently as the past week I saw trees of Marie Louise that had been visited, and although the same havoc as spoken of by "T. A. C." had not been actually committed, the crops might have been seriously jeopardised had the birds followed their course unmolested. The ground was strewn with the outer scales of the fruit buds, and had the trees been of the orthodox bush or pyramid, instead of large orchard samples, the results would have been a thin crop indeed. In our garden last year a tree of Maréchal de la Cour, which always blooms early, was almost denuded of its fruit buds, but so far we have been spared from such mischief this year.

Sparrows sometimes prove troublesome among the Gooseberry bushes, especially in frosty weather when other food becomes scarce, and this year they have already given us some trouble, and not only will they devour Gooseberry, but Currant and Deutzia buds also. The latter is a new experience to me, but nevertheless a fact, for on taking in a portion of our stock to force, I observed that many of the buds had fared the same as those of fruit trees, and accordingly placed the remainder beyond the reach of the birds. "T. A. C." mentions Green Gages only, but I have not observed any partiality shown for these more than other sorts of Plums by the bullfinch. Indeed Damsons and Bullace trees I have seen completely stripped by them.

It is astonishing that birds so destructive should receive so much protection from owners of gardens, for I have been told that fruit shall be sacrificed rather than the birds should be destroyed. But these resolutions are mostly of winter's ruling, as is generally noticed, much to the discomfort of the gardener, disappointments are loud and long when summer arrives and brings with it no fruit. Allowance may be made for thrushes and blackbirds, for their delightful songs, which herald the spring, secure for them some favour even among gardeners, especially the thrush. I have always thought well of the starling as a useful bird to the gardener, and until within the last two years have never known them prove objectionable among fruit crops, but, like "T. A. C.," shall have to dissolve friendly partnership if they continue their unbounded partiality for Raspberries and Strawberries. If possible I believe them to be more greedy than even the blackbird or thrush among the before-mentioned fruits. The best antidote, in my opinion, is powder and shot, but it is not all who are allowed or who care to use them.—W. S., *Frome*.

YOUR correspondent "T. A. C.'s" (page 53) Pear buds seem to have escaped the ravages of these birds until this year. I am sorry to say I have found them as destructive on the Pear as on the Plum and other small fruit trees. This year they began their destructive work much earlier than usual. We have in an orchard a Pear tree 40 feet high of Maréchal de Cour, and for the last three years in succession we have gathered heavy crops of fine fruit. This variety is much prized at table for its splendid flavour and long keeping. The unwelcome intruders are attacking this tree with a vengeance. "F. B." says bullfinches are not insect destroyers except in breeding seasons, if so they are of little use. I, for one, would like to put an end to their existence within reach of fruit plantations. I have known them to attack Peach and Nectarine buds on the walls.—E. HAM, *Mountains, Hildenborough*.

THE WEATHER PLANT.

THE January issue of the "Kew Bulletin" devotes its twenty-eight pages entirely to a consideration of the Weather Plant, *Abrus precatorius*, concerning which so much has been written during the past year or two in metropolitan papers. Someone assigned the plant

the erroneous name of *Abrus peregrinus*, which went the round, and was accepted by many as the right one until it was authoritatively corrected. Mr. Nowack, an Austrian gentleman, seems to have investigated the subject carefully, and the Prince of Wales having introduced him to the authorities at Kew, a series of experiments was undertaken at Kew by Mr. Francis Oliver in conjunction with Mr. Nowack, the results of which are included in a number of comparative weather predictions and actual observations. In introducing the report the following remarks are interesting.

The plant, *Abrus precatorius*, *Linnaeus*, is a well-known tropical weed. Originally a native of India, it is now widely dispersed in tropical regions, including Mauritius, the West Indies, &c. It is a leguminous plant, with the habit of a shrubby climber. In the case of the plants used by Mr. Nowack, the young rapidly growing shoots were cut in before requiring any support. Thus the production of lateral shoots and foliage was stimulated. The seeds of *Abrus precatorius* are well known as "crab's eyes," and are used all over the world for decorative purposes. In India they are called rati, and are largely used by goldsmiths as weights, each weighing about $1\frac{3}{4}$ grain. It is stated that the famous Koh-i-noor diamond was first weighed by the rati, a word which is indeed supposed to have given origin to the jeweller's carat (*Kérat, Arab*). The powdered seeds are harmless when eaten, but rapidly produce fatal effects when introduced beneath the skin even in small quantity. They are used criminally in India in "Sui" poisoning, the object being to obtain the skins of the poisoned domestic animals. The poisonous action is due to the action of a proteid, *Abrin*. The leaves of the plant are 2 to 3 inches long, with ten to fifteen pairs of shortly stalked leaflets. The texture of the latter is very delicate and membranous; the surfaces glabrous.

At the point of insertion of each leaf on the stem is a slightly swollen joint or pulvinus, and each leaflet is provided with a similar small secondary pulvinus at its point of insertion on the main rachis. The rachis as well as the leaflets perform considerable movements both vertically and laterally on their pulvini. It is with these movements that the bulk of this report is concerned, as on them Mr. Nowack bases his various weather prophecies and barometric charts. The leaves are arranged on the stem alternately with for the most part a divergence of half, but since on its development a leaf generally bends round through an angle varying from a few degrees to as much as 90°, it is found on an adult shoot that the leaves point in various directions. They spread themselves so as to obtain the most favourable illumination. This point is of some importance, and will be referred to later on.

I refrain from introducing histological details. But the mode of secondary increase in the thickness of the stem is peculiar and abnormal, as in many plants of climbing habit. The leaves, however, and the motile organs, the pulvini, do not differ in any character or manner from the same organs in other leguminous plants with motile leaves.

Some years ago seeds of this plant were communicated to Mr. Nowack with the statement that "they belonged to a wonderful flowering plant." He raised young plants from them, and was much impressed with the movements of the leaflets and of the leaves. That the movements in question did not depend on the immediate external conditions, Mr. Nowack soon satisfied himself. His observations suggested to him the existence of some connection between the movements and the state of the weather at a future period. The views which his further observations led him to adopt are contained in his pamphlet, published at Prag in 1888.

Mr. Nowack claims to be able to foretell, forty-eight hours ahead, the nature of the weather and its various changes, as well as the strength and direction of the wind, and rise or fall in temperature. Further, that intimation of the advent of earthquakes and of "Schlagwetter"—(*i.e.*, escape of firedamp in coal mines) is given by the plants many days in advance. According to Mr. Nowack, individual plants of *Abrus precatorius* fall into two physiological groups; (1) the Weather Plants proper, which he speaks of as B-plants, and (2), plants indicating coming changes in temperature, T-plants.

I will now shortly describe the chief movements performed by these plants, and the significance attached to them by Mr. Nowack. In the first place, it is claimed that if plants of *Abrus* be allowed to grow undisturbed, the leaves as they develop will place themselves so that their axes lie in the chief planes of the compass N. and S., E. and W.—*i.e.*, that all the leaves on a plant will point either N., S., E., or W. Further, if during its development a plant be turned through an angle, the leaves tend to move back to the four cardinal points. It is by noticing to which side of a plant any given leaf in a phase of movement belongs that the direction from which the indicated weather change will come is ascertained.

The leaves on any healthy plant fall into three categories, according to their age. The oldest leaves of all indicate weather for the immediate locality only, to the distance of half a mile. Leaves of an intermediate age, from five to ten miles; whilst the youngest leaves tell the weather for an outer zone to as great a distance as fifty miles. As the plant grows and develops fresh leaves, those which were a short time before the youngest, and which told the weather for the distant zone, gradually pass over to the intermediate category, and indicate for the middle zone, and finally only for the immediate locality. It must be remembered, then, that the leaves of different ages are sensitive to changes in the weather at varying distances from the point at which observations are being made. The manner in which these changes are indicated is the same in all cases. Thus, a thunderstorm to occur at the greatest distance is signalled forty-eight hours beforehand by the

youngest leaves only; one for the immediate locality is in the same way indicated by the oldest leaves.

From a hurried glance through the tables it appears that the predictions are practically valueless, as though occasionally corresponding in some degree with the weather which actually occurred, in a great many cases there is a wide divergence, as, for instance, the prediction for October 7th at 9.30 A.M. was "overcast," at 10.30 A.M. "fair to fine," the records for the same times showing "fine" and "heavy shower."



FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest Forced Trees.*—Continue to fertilise the blossoms, using a camel's hair brush or feather, which is more effectual than shaking the trellis. When the fruit is well set, syringing may be resorted to, in the morning and afternoon, but in dull weather syringing in the morning will be sufficient, damping the house in the afternoon, it being important that the foliage be dry before night. The water employed must be of the same temperature as that of the house, the inside border receiving liberal supplies. Disbudding will soon require attention, but it must be done carefully at this early season, as it is better to remove a few shoots daily from a tree than many at a time at distant intervals, thus giving a check to the roots. The night temperature may now be maintained at 55° to 60°, 60° to 65° by day, 5° less as the minimum when the weather is severe and dull, admitting a little air at 65°, not allowing an advance over 70° without full ventilation, closing at 65°, except a small space left at the top constantly.

Second Early Forced Trees.—Syringing must cease for trees started at the beginning of the month when the flowers show colour, but damping every available surface in the morning and afternoon must be practised, for though a confined atmosphere is not favourable to Peaches in any stage of their growth, a dry atmosphere is equally pernicious, promoting excessive evaporation, the flowers equally with foliage and fruit being invigorated by atmospheric moisture, provided it is not stagnant. See that the border is in a thoroughly moist state, and examine the trees closely for aphides. If there be any, fumigate the house on two or three consecutive evenings moderately, which will be sufficient to keep the pests under until the fruit is set. In case of an excess of flower buds (and they are very abundant and promising) draw the hand the reverse way of the growth along the under side of the trellis, so as to reduce the number of the buds, which will increase the vigour of those best situated, and tend to a more even and better swelling of the fruit after setting.

Late Houses.—We should again urge the necessity of completing the pruning of the trees at once, dressing them with an insecticide, and tying the shoots to the trellis, the borders being forked over, but not disturbing the roots, any loose surface soil removed and fresh loam supplied, an admixture of wood ashes a fifteenth part, and a twentieth of half-inch bones, being beneficial. If the borders are at all dry they should be given a thorough soaking either with water or liquid manure. Those, however, that have moveable roof lights will not require any water, the soil being in a healthy condition—a thoroughly moist state from rain, and the shoots are kept in a condition by the air moisture unfavourable to the operation, so that the trees not only have thorough rest, but the buds are prevented falling, a consequence mostly of deficiency of moisture at the roots. With the trees exposed we have not experienced any loss of buds, yet they may fall from other causes, such as over-maturity or imperfect formation through attacks of parasites and deficiency of aliment and assimilating power, resulting from too crowded a condition of the foliage.

PINES.—*Fruiting Plants and Starters.*—Those should now have a mean temperature of about 70°, varying it 5° according to external conditions, admitting air at 80° with sunshine, but not lowering the temperature, allowing the heat to rise to 85°, closing when reduced to 80°. Syringe all available surfaces twice every day, but do not syringe the surface of the bed between the plants. Avoid dense steam produced by damping highly heated pipes. The plants also should be syringed occasionally early in the afternoon when the axils of the leaves become dry.

Starting Plants for Successional Fruiting.—About the commencement of next month (February) start another supply of Queens to supplement the fruit from those which are already introduced. Beds having hot-water pipes beneath them can soon be prepared for the reception of the plants, but it is not the case where fermenting materials alone are employed, hence the subject is mentioned now, so that the matter may be seen to at once, and 85° to 90° of bottom heat secured by the time required. When plants which have been kept somewhat drier are to be started see that the soil is made thoroughly moist, so that with the extra warmth root action may commence at once.

Successional Plants.—A night temperature of 60° to 65°, and 5° less in severe weather, will be suitable for those, and 5° to 10° in the daytime according to external conditions. Keep the plants rather dry at the roots, but not excessively so, and when water is considered necessary give it thoroughly at a temperature of about 80°. Suckers should have

a temperature of 55° to 60°, 60° to 65° by day from fire heat, and 10° more with sun heat.

CUCUMBERS.—The night temperature should be maintained at 65°, allowing 5° more in mild weather, whilst it may be 5° less on cold nights, 70° to 75° by day, and 80° to 85° with sun heat. When the external air is mild a little ventilation may be given at 80°, closing before the temperature is reduced below that degree, so as to raise it to 90° or 95°; but if the external air is cold, although the sun shines, it is better to allow the temperature to advance a little beyond the above limits than to admit cold air, which injures the foliage, also causing the fruit to become stunted and to curl at the end. Plants in bearing will require to be examined about twice a week, removing all weakly and exhausted growths, reserving as much of the young bearing wood as is necessary to fill the allotted space, stopping the shoots at one or two joints beyond the fruit. Young plants just coming into bearing should not be allowed to bear too soon, and by no means be overcropped. They are greatly assisted by removing the male flowers (also surplus female flowers) as they appear. The supply of water both at the roots and in the atmosphere must be governed by external influences. Do not syringe the foliage except in the early part of bright afternoons, damp the floor moderately at about 8 A.M. and 2 P.M. Encourage the roots to spread on the surface of the bed by adding a little lumpy loam from time to time, with which may be incorporated a little well decomposed cow dung or fresh, sweetened, horse droppings. Keep a sharp look out for aphides, and fumigate several times moderately and consecutively rather than once severely. Canker is not uncommon at this season of the year. Fresh slaked lime rubbed into the affected parts will arrest its progress. If mildew appear dust with sulphur.

MELONS.—Add a little soil as a top dressing as the plants grow, having them near the glass to prevent drawing. Keep a sharp look out for slugs. A ring of soot or lime placed round the plants will generally preserve them, but means should be employed to entrap the slugs. For frame culture seed may be sown early next month. Soil should be placed under cover, so as to become dried preparatory to forming it into ridges in the Melon house. Good loam, rather strong than light, is suitable for Melons, and if it has been laid up in ridges so as to reduce the turf, it will be in a fitting state for the purpose. If deficient of grit, add a fifth of road sweepings, and if not calcareous a similar proportion of old mortar rubbish. If there is need to add manure, nothing is better than fresh horse droppings. The composition in that case would be four parts of loam, one part each of horse droppings, road sweepings, and lime rubbish.

Raising Cucumber and Melon Plants in Frames.—It is the greatest of mistakes to commence too early. The materials are either not obtainable, or they are not forthcoming in sufficient quantity to make up beds and continue the heat in them by linings, so as to keep the plants in progressive growth during weather that cannot be relied upon as assisting by sun heat, consequently those not sowing seed before February cut fruit quite as early as some do with an inadequacy of heat furnishing material by sowing at the new year. The material for making up the bed for raising the seedlings being in a fit state for turning over and mixing with leaves, so as to induce a sweet regular heat, a site for a bed should be chosen with full southern aspect, and having shelter to the north, as that of a wall or hedge. If the ground be rather higher where the bed is to be formed than the surrounding ground, all the better. Beat the dung and leaves well down with a fork as the work proceeds, making the bed about 5 feet high at the back and 4 feet 6 inches in front, which will allow for settling, as it will do about a third. A few pea sticks placed across the bed at intervals not only prevent overheating, but admit the heat from the linings to the interior of the bed. For early work we have used and frequently recommended frames with double sides. They are formed by placing an inner lining of half-inch boards, 9 inches less in depth at the back and 6 inches less in front than the box, nailing strips of wood an inch wide and thick on the inside of the box, and then the boards which form an inch cavity all around the inside of the box, and thus top heat is furnished.

In about a week the heat will be up. Level the surface of the bed, replace the box, and put in sufficient sweetened dung to raise the inside to within 4 inches of the top of the inner frame or cavity, placing sawdust, dry leaf soil, or spent tan on the dung for plunging the pots in. For raising the plants 3-inch pots are half filled with light rich loam, placing one seed in the centre of each pot, covering with fine moist soil, so that no water is required for the germination of the seed. Space is thus left in the pot for top-dressing, which is preferable to potting the plants. A square of glass placed over the pots will hasten the germination, but it must be removed as soon as the plants appear. Those from a sowing made early in February in the manner described will be ready for planting early in March, and will afford fruit nearly as soon and often quite as early as those from a sowing made early in January.



HINTS FOR BEGINNERS.

EARLY FEEDING AND ENEMIES.

Owing to the extra mild season we have had the bees have never been more than a few days confined at a time, not a week

has passed without some of them being on the wing. Carniolians are as usual the most quiet, but on January 1st young bees were playing on the alighting board of one of them. The blue tits were very busy for a time in picking up any dead ones thrown out of the hive, but owing to my bees being nearly all wintered in full sized deep hives they fail by their pecking at the doorway to induce the bees to respond, so from them and other flying enemies they are comparatively safe. Owing to the position of my hives, and their construction, mice, which are very destructive to bees, cannot enter. To prevent these troublesome pests gaining an entrance, Mr. Wm. Hogg uses queen-excluder perforated zinc on the doorways. The zinc is first cut two holes broad, then the under row is again cut so that the height is the full size of the original doorway of the hive, which gives the bees a tolerably free entrance, where it is absolutely necessary to contract it if mice are numerous. The lowest temperature upon three different nights was 20° Fahr., being 12° below the freezing point; consequently bees that have been breeding and flying late will have consumed much honey, and probably be anticipating an early spring. Flowers have never been absent with us, and the spring ones are pushing forward rapidly. Hives will make similar progress. It will therefore be wise to feed the bees at once, or rather on the first day after they have well aired themselves during the present month. Neglect of this will result in an entire loss of all hives that were in want, and which a few pounds of sugar timely given would have saved and probably made profitable.

THE FEEDER.

As there are so many feeders in the market, every one being held up as perfect, it may be advisable to instruct the beginner how and when to feed. The thoughtful bee-keeper will discontinue feeding bees between about September or the beginning of October, leaving the bees with as much as will tide them over till April or May. Feed earlier in exceptional cases only, and always when necessary take advantage of January mildness, which for half a century now I have never known to be absent. It is best when the hive is large enough to contain stores sufficient for the bees till midsummer, but when this is not the case great attention should be paid to all hives that none linger or go back during April or May, or even June; when this occurs it puts an end to all profit from the June and July gathering. Early swarms are greatly benefited by feeding gently for a week or so after being hived, or as long as honey does not come in. Avoid too rapid feeding. If combs are to be made the bees are inclined to swell them irregularly, and they often collapse. The bees become gorged, are unable to defend themselves, and often when in this state fall a prey to robber bees. From 2 to 4 lbs. every twenty-four hours is ample for any hive; too rapid feeding wears out the bees and overheats, and starts incipient foul brood. There should be a feeder for every hive, so that there will be no risk whatever of inflicting stocks that may be fed from a feeder that had been used by an infected stock.

Feeders should be of wood as much as possible where the bees come into contact with them, and the syrup is so placed that the bees will not have far to travel from the combs to get it. Float feeders, unless it is merely to cover the tin of shallow feeders, cannot be recommended, and the slow stimulative feeders are but toys, and I believe does more harm to bees than good. I use the "universal feeder," partly described at page 564 last December. It consists of a tin $4\frac{1}{2}$ inches square and holds about 2 lbs. dissolved sugar, with or without a pane of glass. The neck should be neat, half an inch long over all, which has a brass screw, such as is used for oil cans, not more than seven-eighths of an inch outside measure soldered to it. A hole about a quarter of an inch is drilled in the centre, receives the valve, which is a broad-headed saw handle screw nail, which I omitted to state at page 564. It is absolutely necessary these sizes should be adhered to

The next thing in connection with this tin is the feeder proper.

It is simply a frame having a top bar $1\frac{1}{8}$ of an inch thick instead of half inch. To make this feeder dress a piece of wood the exact length of the top bar, $3\frac{3}{4}$ inch broad by $1\frac{1}{8}$ inch thick. Now mark off 2 inches in the centre of top bar and $1\frac{1}{8}$ at each end, which must be kept entire. Bore an inch hole five-eighths of an inch deep; this is to receive a neck of tin, at the extreme of the centre 2 inches, and at the extreme of the end $1\frac{1}{8}$ inch make a saw cut one-eighth of an inch deep, bevelled inwards so as to hold a pane of glass, then make other cuts fully an eighth of an inch inside those first cut, but square and three-eighths down. Now cut out this neatly, and when done clean away the wood to the first cut an eighth down; this will now be ready to take the glass, which is slipped in edge-ways, the bevelled wood preventing it falling out when inverted. As yet there is no way for the bees to pass up to the syrup, but by continuing the saw cut down the edges one-quarter deep, this cleaned out leaves the frame inside the ends and centre piece $1\frac{1}{8}$ broad. Trench a trough three-eighths of an inch deep in centre of bar, and drill a hole between the inch hole in the centre and the trough, so that the syrup flows into the trough when the tin is inverted, and the valve touches the bottom. This trough gives about 2 feet standing space for bees to feed, and will take 2 lbs. of sugar in less than two hours when in a feeding state. No feeder can possibly excel this one as a top feeder; it not only can be used for syrup, but one of the troughs may be set apart for pease brose made with honey. In this form I have fed my bees for neatly forty years.

If you wish to render the feeder still more serviceable a trough for placing on the top of the frames is used; it is made from wood about 6 inches square by five-eighths thick, half an inch from one edge, the trough three-eighths wide and deep is cut, and a trench is cut behind communicating with the trough, three-eighths of an inch is raised round the trench to fit the neck of the tin, and a casing is all round the feeder. A pane of glass slides in a groove over the trough and the bees ascend to it. A small queens' cage fits into this, and queen introduction and feeding continue at the same time, which I have found satisfactory. As an under feeder with a tin scoop about $1\frac{1}{2}$ inch broad by three-eighths deep, having a bit of spale as a float when feeding at the front, but when fed from behind beneath the perforated zinc floor is of no use. This latter plan is the best place to feed when it is necessary to do so when the hive is covered up, and when the bees are likely to be flying as when at the moors. Altogether the bees can be fed six different ways with this feeder, and stranger bees cannot get at the syrup without having to pass through the hive or the sentinel bees, while the fountain may be left out full of syrup no bee can gain an entrance to it. The fountain and scoop should not cost more than 1s. each, while every bee-keeper can make easily enough the frame and box feeder.—A LANARKSHIRE BEE-KEEPER.

(To be continued.)

BEEES HYBERNATING—REARING QUEENS.

In the Journal for the 9th "A Lanarkshire Bee-keeper" takes exception to some parts of my article. He questions whether bees hibernate, I can inform him that out of twenty-six stocks of mine all but two are truly hibernating. They are located on a hillside sloping due south at an angle of about 30°, and are thus well sheltered on the north, also by high buildings on the west, so that when the sun shines it is quite warm, even in winter. On Sunday, the 12th, the temperature rose in the shade to 65° after a very windy morning, so with the sun in full height about 1 P.M. I thought I would note how many had "woke up." It was so warm and bright that I expected every one would be in flight, but only six stocks showed bees flying, with one only in full flight, a stock of Cyprians, which looked truly beautiful in the sun.

I cannot expect, or hope, to convert all at once, but let bee-keepers rear their queens on the lines I have laid down for three or four years they will believe then, I think, and he will be a bold man to assert that my plan is worse than any other. "A. L. B. K." admits the bee-keeper will be a gainer, though he thinks, like many others, that his methods are satisfactory. I do not question his statement at all on this. What I want is progress. The things that were satisfactory in bygone times will not do in these days, nor will those of to-day do in the future.—A HALLAMSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Little & Ballantyne, Carlisle.—*List of Flower and Vegetable Seeds, 1890.*

M. de Reydellet, Valence (Drôme), France.—*Catalogue of Chrysanthemums.*

F. C. Heinemann, Erfurt.—*Seed Catalogue, 1890.*

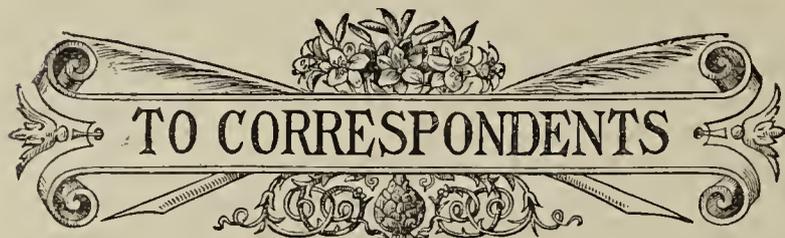
T. S. Ware, Tottenham.—*Catalogue of Flower Seeds, Chrysanthemums, Dahlias, and Gladioli, 1890.*

W. Piercy, 89, West Road, Forest Hill, S.E.; Dobie & Mason, 66, Deansgate, Manchester.—*List of Reliable Seeds, 1890.*

Samuel Yates, 78, Shadehill, Manchester.—*Catalogue of Seeds, 1890.*

William Eull, 536, King's Road, Chelsea.—*Catalogue of Flower and Vegetable Seeds.*

William Baylor Hartland.—*Year Book of Seeds, 1890.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Vine Shoots and Vine Wood (X. Y. Z.).—Please send particulars of the age and condition of the trees and border, and indicate the treatment that has been pursued at the roots and otherwise; also favour with similar information about the Vines from which you send wood, and state the extent of the cropping in both cases. It is necessary that we receive the information this week for a satisfactory reply being inserted in our next issue.

Cyclamen (J. C. G.).—The flower and leaf of Cyclamen having been sent in a dry box, without any packing, such as green leaves or grass, arrived completely withered and curled up, so that no estimate could be formed of the merits of the variety. The photograph you send represents an admirably grown plant, which you say measures 2 feet 7 inches across, and on a day which you mention was bearing 226 flowers. The specimen is most creditable to the cultivator.

Palms for the Isle of Man (A. D. Doug'as).—You might try *Chamaerops Fortunei*, which would be the most likely to succeed. Possibly in sheltered places *Phoenix dactylifera* would be safe, at least it can, with many others, be grown out of doors in the summer. In the *Kew Bulletin* for December last you will find much useful information respecting the Palms grown in the Riviera. It can be obtained through booksellers or from Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C., price 2d.

Fruit Trees in Pots (A. B.).—Under the circumstances you describe we should have removed the trees from the house some time ago, and packed litter round and over the pots, and thatched this to prevent the heavy rains we think you have in your district saturating the soil. If the buds are still dormant we should remove the trees now, and shelter them as you propose in severe weather. If you retard the flowering you may expect a better set of fruit under favourable atmospheric influences under glass.

Peach Trees Unsatisfactory (Idem).—In your case there can be little doubt that the premature falling of the buds is the result of immature wood. You would probably have done well by again lifting the trees before the leaves fell last autumn. Your object should be to encourage a mass of fibrous roots near the surface in firm calcareous soil, then by disposing the growths thinly the wood would have the best chance of ripening. You had better carry out your proposition of employing more fire heat, so that more air can be admitted and a drier atmosphere maintained, especially in the autumn. Fire heat is often of great benefit in the daytime after the fruit is gathered, and until the leaves change, with full ventilation. All the wood not required for the next crop should be cut out as soon as possible in the autumn after the fruit is removed from the trees. More than half the Peach trees in the kingdom are much overcrowded in the summer and autumn by retaining too many shoots when disbudding, and letting them remain till the leaves fall. You say your "place is white with Snowdrops and Winter Aconites." We suspect you mean white and yellow. If you have any white Winter Aconites we shall be glad to see a few of the flowers.

Tabernaemontana Flowers Falling (W. W.).—Are you sure the soil has not become too dry at some time during the past month? An hour's dryness would cause the buds to fall, so also would a sudden change from a moist to a dry atmosphere; and if you syringed freely and frequently you may have gone from one extreme of moisture to the other by ceasing syringing altogether. Then, again, a sudden fall in temperature would prevent the flowers expanding. Try a night temperature of 65°.

Ventilating Three-quarter Span-roofed House (S. G. R.).—The house will be efficiently ventilated by having a board or flap ventilator 11 inches wide the whole length of the front, and is best either immediately below the sill or roof plate, or immediately above the intended inside ground level. It will answer very well as shown in your sketch. The top ventilation is best on the south side of the roof, the lights being 2 feet deep and the whole length of the house opening with crank and lever movement so as to facilitate operations.

Annuals for Cutting (J. B.).—In addition to those mentioned in your letter the following are grown for the purpose in question:—Sweet Peas, Cornflowers, *Acrocliniums*, *Rhodanthes*, *Nigellas*, *Mignonette* in varieties, *Venus's Looking Glass*, *Erysimums*, *Phlox Drummondii*, *Larkspurs*, *Dwarf Convolvulus*, *Godetias*, *Helichrysums*, *Bartonia aurea*. We should not consider it the best plan to sow these and some of those you name in hotbeds in February and transplant them twice as you describe. You, however, cannot do better than follow the practice you have found successful. We should sow several outside towards the end of March or in April for succession, thinning the plants early and sufficiently, and allow them to grow and flower without any transplanting.

Moss on Lawn (G. B.).—Your lawn probably needs draining. There is no permanent cure for moss in lawns when the soil contains stagnant water. It is not at all uncommon for soot to do good on many lawns, then in two or three years for the moss to grow as luxuriantly as ever. On a suitable day scratch out all the moss you can with a small fine-toothed rake, then spread on the surface a mixture of equal parts of wood ashes, lime, and soil (sifted) nearly a quarter of an inch thick if you have enough. Do this now, and in about a month's time sow a renovating mixture containing White Clover seed, scratching it in, also sifting a little fresh soil over it, and draw a light clean roller over the surface. If this fails to accomplish the desired object, nothing will do so except draining.

Fuchsias for Cutting (Subscriber).—We presume from your letter that you refer to varieties usually grown in greenhouses, that you desire to plant outdoors in summer, and take up in the autumn for preserving through the winter. This we have done for years, and the older the plants became the more satisfactory we found them. For the purpose in question we have found the old Rose of Castille one of the most useful, but a newer variety, Prince Alfred, is equally free, and has a darker corolla. *Erecta Von Novelty* is also good for your purpose. Those have white sepals. A good variety with white corolla is *Flocon de Neige*. Suitable dark varieties are less numerous. One of the best we have seen for vase decoration is *Madame Thibaut*; *Crimson Globe* is also good. You should plant some of the hardy border Fuchsias, and allow them to remain to be cut down by frost, as they will be in your district, and grow again in the spring. The most useful of these we have found in *F. Riccartoni*, though *F. corallina*, *F. coccinea*, *F. gracilis*, and *F. discolor* are worth growing for affording sprays for cutting.

Vinery Arrangements (J. G.).—The width being 22 feet, the height from the floor level in the centre of the house may be 13 feet as you propose—certainly not less than 11 feet. 1, A flow and return 4-inch pipe all round the house, except doorway, will give sufficient heat, the house not being intended for forcing. 2, It is no disadvantage to have the Vine border inside, the only difference is that an inside border entails more labour in watering; the roots being inside are under control, and can be fed by surface dressings or liquid manure as required. As there is water at 3 feet depth it would be well to have drains to carry it off, at least there must be a drain with proper fall and outlet to take superfluous water away from the drainage, as Vines cannot be satisfactory in a water-logged border. In other respects your proposed method of forming the border is sound. If the border is made 4 feet wide and the old soil left in the unmade part it will not be necessary to put anything down to keep the roots from entering the unmade part, as the few the Vines make in it will not prejudice their growth when the other part of the border is made, through their being disturbed. The house being 20 feet long five Vines on each side will be a proper number. Half the Vines being Black Hamburgs, you may have Foster's Seedling, *Madresfield Court*, *Alnwick Seedling*, *Mrs. Pearson*, and *Lady Downe's*. The Vines being started early in March the Black Hamburg will be ripe late in July or early in August, and the others will ripen successively afterwards—all by the middle or close of September, and afford a supply of Grapes up to the time of again starting the Vines, or later; but the Grapes must be cut and bottled not later than the new year, so as to allow of the Vines being pruned, and have a few weeks' rest. The best Vines to plant are those known as "planting" canes, which are usually one year old from the eye, being clean, healthy and well rooted.

Pear not Bearing (J. F. W.).—As you say the tree was "thoroughly root-pruned two years ago," and your gardener thinks it does not make too much wood, it is a little strange it does not produce flower buds on a wall facing west. Possibly it may do so this spring, as last summer was much more favourable for ripening the wood than the

season of 1888 was. Blossom buds can be distinguished from wood buds now on careful examination. Are the main branches too close together? They should be sufficiently distant for a little of the wall to be seen between them when the tree is in full leaf in the summer. Many trees are prevented bearing by overcrowding of the growths and foliage. If you had stated the length of the summer shoots or breast-wood we could have formed our own opinion as to whether that is excessive or not. On many trees not only are the branches too close, but the spurs are too near together on them, and we have seen excellent results follow through some of them being cut out. Also when Pear trees refuse to form fruit buds under ordinary spur pruning, we have seen them rendered fruitful by cutting out some of the branches, and so affording space for training selected summer growths their whole length, and where the leaves were not shaded in the least by the growths from contiguous branches. On such unshortened young wood fruit buds form naturally if the trees have sufficient fibrous roots in good and firm soil. Digging and cropping to within 2 or 3 feet of the stems of fruit trees is not conducive to fruitfulness. We should hesitate before destroying a healthy tree of such a good Pear as Dayenné du Comice. This variety bears us good crops of excellent fruit. If you like to give more particulars of the tree, and briefly describe the method of summer and winter pruning that has been pursued, enclosing a rough sketch if practicable, your letter shall have attention. We much prefer returning to a subject when we can do so usefully than dismissing it summarily, if additional information can be supplied.

A Too Successful Prizewinner (Head Gardener).—The proposal you submit is a novel one, and we print the substance of your letter in case any of our readers can aid in solving the problem. Here it is:—"An exhibitor last year took away all the best prizes at our local show, which caused a feeling of jealousy amongst the cottagers. Our Committee are desirous of preventing a recurrence at the next show, and proposed to introduce a new rule as follows:—"No exhibitor shall be allowed to receive more than three first prizes." Now comes a difficulty. The Judges will in all probability award many more than three first prizes to one exhibitor, as was done last year; but having the above rule against them their decisions are to be set aside at the time the prizes are paid to the winner, by only giving him the three first prizes as above stated, and should the Judges have awarded him more the winner is to be informed he is not entitled to them under the new rule, and must give them up to a second prize winner in the same class, and he (the first prize winner) take the seconds. I am inclined to think the above will cause a great dispute, but should be glad to have your opinion." Our opinion is the same as yours—namely, that a "great dispute" will arise if the project is carried out, and it will not be surprising if a successful exhibitor, who is fully entitled to compete in the classes, finds many friends who will dissent from the treatment indicated. A person is either eligible to compete, or he is not. If he is, and the Judges award him a first prize in every class, he is entitled to those prizes. They are the rewards for excellence. If a number of these prizes were taken from him and given to exhibitors of inferior produce, this would be according honours to which the second prize men had no just claim. When the Committee can prove that two wrongs make a right, it will be soon enough, in our opinion, to adopt the curious proposal. If a striving man wins so many more prizes than his fellow competitors, it is for them to bestir themselves and defeat him honourably, and if they cannot do so to submit manfully. That is our view of the case, and if those of our correspondents who have had to encounter difficulties in the management of cottagers' shows can tell you how to proceed in surmounting yours, they are at liberty to do so.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (C. G.).—The Apple resembles Sweeny Nonpariel, but the fruit is imperfect; no one could name it with certainty. (J. B.).—The seedling Apple is worthless; we should cut the tree down and insert scions of a known good variety.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (W. G.).—You think there was a "mistake somewhere," but state no reasons for the assumption. Perhaps you made a mistake in the numbers. We have no doubt the specimens were correctly named.

COVENT GARDEN MARKET.—JANUARY 22ND.

No alteration.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2 0	to 6 0	Oranges, per 100	4 0	to 9 0
Nova Scotia and	0 0	0 0	Peaches, dozen	0 0	0 0
" Canada, per barrel	12 0	20 0	Plums, ½ sieve	0 0	0 0
Cherries, ½ sieve	0 0	0 0	Red Currants, per ½ sieve	0 0	0 0
Grapes, per lb.	2 0	4 0	Black	0 0	0 0
Lemons, case	10 0	15 0	St. Michael Pines, each	2 0	6 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	4 0	to 5 0	Leeks, bunch	0 2	to 0 0
Asparagus, bundle	0 0	0 0	Lettuce, dozen	0 9	1 3
Beans, Kidney, per lb. ..	1 6	2 0	Mushrooms, punnet ..	1 6	2 0
Beet, Red, dozen	1 0	2 0	Mustard & Cress, punnet	0 2	0 0
Broccoli, bundle	0 0	0 0	Onions, bustle	3 0	4 0
Brussels Sprouts, ½ sieve	1 6	2 0	Parsley, dozen bunches	3 0	3 0
Cabbage, dozen	1 6	0 0	Parsnips, dozen	1 0	0 0
Capsicums, per 100	0 0	0 0	Potatoes, per cwt.	3 0	4 0
Carrots, bunch	0 4	0 0	Rhubarb, bundle	0 2	0 0
Canflowers, dozen	2 0	4 0	Salsify, bundle	1 0	1 6
Celery, bundle	1 0	1 3	Scorzenera, bundle ..	1 6	0 0
Coleworts, doz. bunches	2 0	4 0	Shallots, per lb.	0 3	0 0
Cucumbers, each	0 3	0 6	Spinach, bushel	1 0	2 0
Endive, dozen	1 0	0 0	Tomatoes, per lb.	0 6	1 0
Herbs, bunch	0 2	0 0	Turnips, bunch	0 4	0 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	4 0	to 6 0	Maidenhair Fern, doz.	4 0	to 9 0
Azalea, dozen sprays ..	0 9	1 6	Mignonette, 12 bunches	2 0	4 0
Bouvardias, bunch	0 6	1 0	Fr., large bunch	1 6	2 0
Camellias, dozen blooms	1 6	4 0	Narcissus (Paper-white),		
Carnations, 12 blooms ..	1 0	2 0	dozen sprays	1 0	1 6
Christmas Roses, 12 blms.	0 6	2 0	" French, 12 bunches	3 0	6 0
Chrysanthemums, dozen			Pelargoniums, 12 trusses	1 0	1 6
blooms	0 6	3 0	" scarlet, 12 bunches	6 0	12 0
Chrysanthemums, dozen			Primula (double) 12 sprays	1 0	1 6
bunches	6 0	12 0	" (single) 12 sprays	0 6	1 0
Daffodils, dozen blooms ..	1 0	2 0	Roses (indoor), dozen ..	1 6	3 0
Epiphyllums, doz. blooms	0 6	0 9	" Red	0 0	0 0
Eucharis, dozen	4 0	6 0	" 12 blooms	1 6	2 0
Gardenias, 12 blooms ..	12 0	13 0	" Tea, white, dozen ..	1 0	3 0
Gladiolus (various) dozen			" Yellow	2 0	4 0
sprays	0 0	0 0	" French, per bunch ..	3 0	6 0
Hyacinths (Roman) dozen			Soirea, dozen bunches ..	9 0	12 0
sprays	0 6	1 6	Stephanotis, doz. sprays	0 0	0 0
Lapageria, 12 blooms ..	2 0	4 0	Sweet Peas, doz. bunches	0 0	0 0
Lilium, various, 12 blms	2 0	4 0	Tuberosea, 12 blooms ..	1 6	2 0
Lilium longiflorum, 12			Violets, dozen bunches ..	1 0	2 0
blooms	9 0	12 0	" French, per bunch	2 0	3 0
Lily of the Valley, dozen			" Parme, per bunch	3 0	5 0
sprays	0 6	1 0	White Lilac, Fr., per bunch	6 0	8 0
Marguerites, 12 bunches	2 0	6 0			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6 0	to 12 0	Ficus elastica, each ..	1 6	to 7 0
Arum Lilies, per dozen ..	12 0	18 0	Foliage plants, var., each	2 0	10 0
Arbor vitae (golden) dozen	6 0	24 0	Hyacinths, 12 pots ..	7 0	10 0
Azalea, various, per doz.	2 0	35 0	" (Roman) 12 pots	9 0	12 0
Begonias, various, per doz	4 0	13 0	Lily of the Valley, 12 pots	13 0	30 0
Balsams, per dozen ..	0 0	0 0	Marguerite Daisy, dozen	6 0	12 0
Caladiums, per doz. ..	0 0	0 0	Mignonette, per dozen ..	0 0	0 0
Christmas Rose	0 0	0 0	Musk, per dozen	0 0	0 0
Chrysanthemums, dozen	6 0	15 0	Myrtles, dozen	6 0	12 0
Dracena terminalis, doz.	24 0	42 0	Palms, in var., each ..	2 6	21 0
Dracena viridis, doz. ..	12 0	24 0	Primula (single) per doz.	4 0	6 0
Epiphyllum, per doz. ..	12 0	24 0	Rhodanthe, per dozen ..	0 0	0 0
Erics, various, dozen ..	12 0	18 0	Saxifraga pyramidalis,		
Eunonymus, var., dozen	6 0	18 0	per dozen	0 0	0 0
Evergreens, in var., dozen	6 0	24 0	Solanums, per dozen ..	6 0	12 0
Ferns, in variety, dozen	4 0	18 0	Tulips, 12 pots	8 0	10 0



MANURE FOR GRASS LAND.

MOISTURE and heat for the growth, fine weather for the harvest, and an ample store of fertility in the soil, are the chief factors to success in a crop of hay. We cannot command fine weather, but we can ensure an early vigorous growth by the timely and judicious use of manure. Careful experiments of the various fertilisers known to us have been tried on the land in different parts of England and Scotland, and the results show uniformity in one point only—i.e., that it is impossible to fix the exact quantity per acre of any manure for general use, or even for particular localities. Some results are positively misleading, as for example in the recent report of the Dyson Wood experiments, we are told that one of the plots dressed with 3 cwts. dissolved bones at a cost of 18s. per acre yielded 38 cwts. 1½ qr. of hay. Now here the cost and the results are alike tempting; but anyone who has had practical experience of such manures must know that interesting and valuable as this experiment is when taken in comparison with the others at Dyson Wood, yet it is worthless for general adoption. No doubt dissolved bones are a particularly safe form of manure for general use, but pasture, like animals, thrives best on mixed food, and the mixture can be had for very little more than the cost of the dissolved bones.

When really genuine pure manures are used we have found that 3 cwt. per acre is an ample dressing if applied every year in February. Pray mark this, for though it is easy to talk about "strong" land and rich soil, yet there is no such thing as a permanent storage of any soil with fertility. Every crop taken from the land is more or less exhaustive, and if we would ensure the next crop being a full one manure must be used. Having thus once more made clear the necessity and importance of periodical manure dressings, let us now see of what our grass manure mixture should consist to render it sure and safe for general use. We require a well-balanced mixture of mineral and nitrogenous manure, in which nitrogen, potash, and phosphoric acid (the essential elements of plant food), are all present in sufficient quantities to ensure a full crop in any soil. We take, therefore, as our chief ingredients 1 cwt. nitrate of soda and 1½ cwt. mineral superphosphate, and add as auxiliaries to render it a complete manure, ¼ cwt. muriate of potash, and ¼ cwt. steamed bone flour. Taken at ton rates this manure can be had put on rail at about 20s. per acre, to which there would be some additional outlay for carriage, mixing, and using, for the manures should always be had separately and mixed at the farm under careful supervision. The best way to apply it is with an Excelsior drill, which makes a capital broadcast sower when the coulters are taken off, and the sowing can be regulated to a nicety, and checked by the dial plate on the drill. Nitrate of soda always contains many large portions which must be pulverised by a sharp stroke or two with the back of a shovel. We have always found this sufficient without sifting when the manure is sown broadcast. Sifting is only necessary when the manure is drilled with seed, as it is then liable to clog the coulters if not quite fine, and it should not be forgotten that manure merchants charge 5s. per ton extra for sifting.

We strongly urge all managers of home farms to use the mixture we recommend for pasture and forage crops this spring, only take care that the manure is pure, and that it is used early, and we are confident the result will be entirely satisfactory. It is because we have used it largely on light, mixed, and heavy land on various formations in different counties with singularly uniform success that we are able to speak with such confidence about it. Many tenant farmers have used it under our guidance, and their outspoken expressions of gratitude on finding the results were much beyond their expectations were assuredly pleasant hearing. It is only by actual demonstration that we can hope to inspire men of this class with the confidence necessary to ensure a free use of pure chemical manures. Many landlords have subscribed liberally to associations formed for the improvement of agriculture, they have also done much for tenants by reduction and remission of rent; but they can do more by having pure manures used at their home farms and at any farms falling in hand, and they would enable tenants to help themselves if assistance were given him in the welcome guise of enough manure for his pasture this year, on condition that it should be used under the supervision of the landlord's agent. No doubt to procure each sort of manure separately and to have the mixing done at the farm involve some labour, but it is certainly labour well bestowed, and it is high time that farmers ceased to waste their means upon doubtful mixtures into which dustbin refuse enters so largely.

WORK ON THE HOME FARM.

Work on the land has been slack, and there has been time to examine, clean and repair implements and tools. The worn tines and hoes of cultivators and harrows have been repaired, broken chains mended and worn links renewed; wheels and rollers have been greased, and all wood and iron work on carriages and implements has been painted. The advantage of all this when the busy time of spring comes round again is so obvious that any reminder of it would appear unnecessary, but it is unfortunately exceptional to see a farming plant kept in good order. Tools and implements in good order tend to help on work briskly, and often enable one to be beforehand with work. It is a good rule to have every implement brought to the homestead upon the completion of every special job, and never to allow ploughs, harrows, rollers or cultivators to be left by hedge or ditch till they are wanted again. Mowing, reaping and binding machines should also be over-

hauled, all worn bearings repaired and gearing made quite sound and strong. Horse rakes and tedding machines with bent or twisted teeth are a hindrance to work, and should be set right now, and it may make several days' difference to our advantage when they are wanted. We had occasion to call on a large implement maker just as haymaking had begun last season, and found quite a crowd of old mowing machines that had been sent in for repair just as they were wanted for work, and orders for new tedding machines were coming in faster than they could be supplied. Moral: Get your repairs done and what new implements you require now, and then not an hour will be lost when you require them for use.

The mild open weather is most favourable for early lambs, and they are doing well. Shepherds must be on their guard against any sudden change to colder weather, and keep the lambs near the fold or other place of shelter. See that plenty of fresh dry litter is used in the fold, and get ewes and lambs out on the pasture on all fine days. With the fine stock of hay the temptation to use it freely will be great, but it is always well to have an ample store of old hay, and with plenty of good sweet chaff, grass and roots very little else is required. Silage now takes the place of hay both for sheep and cattle. It is a nourishing article of diet, and is in every way a boon to the farmer.

A FIELD LAID DOWN TO PERMANENT GRASS.—A paper, by Sir J. B. Lawes, on the history of a field laid down to permanent Grass, has been reprinted, by Messrs. Spottiswoode, from the Journal of the Royal Agricultural Society of England. The field in question forms part of the Rothamsted estate, and was laid down to permanent Grass nearly thirty years ago by Dr. Gilbert, to whom it was left in 1856. It has been mown for hay every year from the commencement; and in the present pamphlet Sir J. B. Lawes gives full particulars as to the economical results, the constituents supplied in the manures and removed in the crops, the changes within the soil in the formation of the meadow, and the hotany of the meadow. The following are his summary and general conclusions:—(1) By the judicious employment of manures, both natural and artificial, arable land has been converted into permanent Grass, not only without loss, but with some profit to the tenant. (2) The important constituents, nitrogen and phosphoric acid, were supplied in the manures in larger quantities than they were removed in the crops; but potash in only about the same quantity as it was removed. (3) The application of dung not only compensates for much of the exhaustion from the removal of hay, but it has a beneficial influence on the hotanical character of the herbage. (4) Although the Grass has been mown every year for nearly thirty years, there has been a considerable accumulation of fertility within the soil. (5) Analysis has shown that there has been an increase of nitrogen in the surface soil, beyond that which could be explained by excess supplied in manure over that removed in crops, and by the combined nitrogen coming down in rain, and the minor deposits from the atmosphere. Part, if not the whole, of this increase is probably derived from the subsoil by deeply rooted plants, which afterwards leave a nitrogenous residue within the surface soil. Or, possibly, some of it may have its source in the free nitrogen of the atmosphere, brought into combination within the soil, under the influence of micro-organisms, or other low forms. (6) In laying down arable land to permanent Grass, especially if hay is to be removed, it is essential to supply, not only nitrogenous, but an abundance of mineral manures, and especially of potash, a large quantity of which is removed in the crops, and must be returned. When the Grass is not mown, but fed, the exhaustion is much less, but it is greater when consumed for the production of milk than when for that of store or fattening increase.—(Nature.)

METEOROLOGICAL OBSERVATIONS.

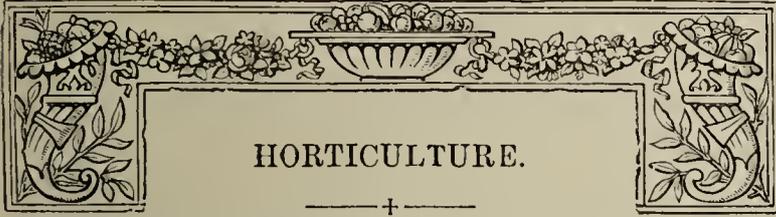
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890. January.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	12	30.184	48.1	43.2	N.W.	43.2	51.2	41.5	78.3	40.4	—
Monday	13	30.120	48.2	46.9	S.W.	41.9	52.7	24.9	58.1	26.4	—
Tuesday	14	30.232	38.8	38.8	S.E.	42.4	40.4	38.4	52.9	34.3	—
Wednesday	15	30.145	48.1	46.9	S.W.	42.1	50.2	38.9	53.6	35.3	—
Thursday	16	30.166	44.3	47.0	S.	43.9	52.8	45.9	62.0	39.9	—
Friday	17	30.129	45.2	44.0	S.E.	44.1	47.1	45.1	67.1	41.3	0.127
Saturday	18	29.729	42.4	39.9	S.W.	43.8	56.6	41.7	70.8	35.8	0.233
		30.099	45.6	44.1			40.7	40.9	63.0	36.5	0.369

REMARKS.

- 12th.—Unbroken sunshine throughout the day; starlight night.
 13th.—Dull and damp all day.
 14th.—Slight fog early; dull morning; damp afternoon.
 15th.—Overcast and mild.
 16th.—Cloudy morning; fine afternoon, with some sunshine.
 17th.—Generally cloudy in the morning; bright afternoon; gale and rain at night.
 18th.—Bright sunshine during day; cloudy evening; gale and rain at night.
 Another mild week, and generally fine; sun on the 12th quite warm.—G. J. SYMONS.



HORTICULTURE.

UNDER that familiar term, which in common parlance signifies the art of cultivating gardens, a great variety of subjects present themselves for consideration, each of which possesses interest to certain sections of the community. Those sections in the aggregate form a great army, engaged, as we believe, in an important and beneficent campaign in the furtherance of objects as worthy as any which can claim the attention of man. Making the world more productive of that which is good, making our surroundings brighter, ministering to the necessities of the poor, and adding to the wholesome requirements of the rich, is a pursuit than which no other has higher claims to encouragement. It seems desirable from time to time to see how we stand as a body; or, more correctly, to see how our work is moving, for stand still it cannot, as there must be either advancement or retrogression.

Looking back over the past few years it is impossible to ignore the fact that obstacles of varying magnitude barred the path of progress. This was not so in horticulture only, but even more seriously in the sister art of agriculture, also in most branches of commerce. The declension was general, and correlatively so must be the revival. All the branches of industry, all the means of producing wealth and promoting prosperity, can be reduced to two concrete forms—commerce and cultivation. These act and react on each other and influence everything. Art, science, professions, organisations of benevolence, and even missionary effort feel the strain when the wheels of commerce drag slowly and wearily along, or, what is worse, glide backwards. This movement is measurable and has been distinctly on the down grade in the past, but is clearly now on the ascent to prosperity. Trade returns tell us this unmistakably, and corresponding signs of improvement in the agricultural world are apparent. Land is letting better and the prospects of cultivators are brighter. Difficulties are often blessings in disguise in arousing to higher effort and stimulating to better things.

Activity appears noticeable everywhere, and in many respects progress is unmistakable. Benevolent objects in the horticultural world are well maintained, conferences and associations are more numerous, better attended and better supported; thus knowledge is being gained and distributed that must exert an influence in developing the resources of the soil for the common benefit of all. There is a stirring individually for excellence, and a general bestirring in corporate bodies. The Royal Horticultural Society is advancing and increasingly gaining public confidence. It is working on lines we believe to be sound, and in this way gaining adherents. Special societies for encouraging the culture of different kinds of plants and enlisting recruits to the great floral army are heartily engaged, and accomplishing what could not possibly be done so well in any other way. Honours are being accorded on a broader basis than before, and many will observe with pleasure that special medals are being granted by the Veitch Memorial Trustees to good, assiduous, and successful workers for "services in horticulture." Mr. A. F. Barron is followed by Mr. Bruce Findlay and Mr. David Thomson as fitting recipients. In this way not only is merit rewarded, but encouragement is afforded to others who will doubtless be in due time enrolled in the list of worthies. All this savours of progress, and it is a pleasure to record it; but in

one respect perhaps advancement is fully too rapid—the manufacture of gardeners.

One of the greatest movements of the time is in the direction of fruit culture, and there appears somewhat of a rivalry amongst individuals and organisations in its "promotion." Newspapers are being half filled with letters on fruit, practical men, faddists, and, truth compels us to add, charlatans, joining in the discussion; these latter, however, not often finding expression in well conducted journals; and some writings in a medium of high position a correspondent treats lightsofely in another column. We cannot say we agree with all he says, but accord him space for utterance because he appears to write good-humouredly, and has had long experience in fruit cultivation.

One of the ancient city guilds is giving the weight of its influence in fostering the work, and no one who attended the annual dinner of the Master and Wardens of the Fruiterers' Company on Monday night last could have failed to recognise the earnestness and indeed animation that prevailed throughout the proceedings. The newly elected Master of the Company, Sir James Whitehead, Bart., ex-Lord Mayor, made an earnest and eloquent appeal on behalf of the object of his desire—British fruit grown in British soil for supplying the wants of the community. He asked for the help of all—the Board of Agriculture as represented by Major Craigie in procuring grants for teaching the elements and principles of horticulture and agriculture in village schools as an important and necessary form of technical education; he appealed to the Royal Agricultural Society through Col. Sir Nigel Kingscote, Bart., for co-operation, and to the richer City Companies for pecuniary help towards raising a fund for distribution in a manner which would do the greatest good to the greatest number, and thus improve the condition of landlords, tenants, and labourers by the extended and better cultivation of hardy fruits. The responses of the gentlemen named were encouraging, and even the Lord Mayor (Sir Henry Isaacs), who made a somewhat pessimistic speech, was so far converted to the views of the majority as to assist by a contribution. The zeal that is being displayed is admirable, the enthusiasm "catching," and both are requisite for the conduct of a campaign; but they must be tempered with wisdom, and the procedure guided by experience for achieving the best results.

Individual fancies must be made subservient to sound principles, and much that is fanciful is heard nowadays on the subject of fruit culture. Optimists appear at the moment in the ascendant, but there is a powerful body of pessimists to put on the drag; and practicalists whose minds are well balanced by experience—men who know the contingencies to which fruit culture is liable, and also the methods by which it can be best conducted to a successful issue—are, after all that can be said, the safest guides to follow in the important work. It is by a combination of influence, wealth, and workers that the most good can be done in this and other useful, desirable, and enjoyable branches of horticulture, and in all branches we are glad to believe that the spirit of progress is moving horticulturists onward to a time of greater prosperity.

OUR FRUIT SUPPLY—PEARS UNDER GLASS.

GARDENERS who can take a retrospect over the last half-century will, I think, not be able to fix upon any given time when the horticultural press was so freighted with matter bearing on the cultivation of our hardy fruits, especially Apples and Pears, as it has been for the last two or three years. The dry bones of old and effete orchards have had such a shaking of late as one has not any recollection of. The interchange of ideas and discussions that have taken place between men so situated as to have had opportunities of making themselves experts in the matter have been very interesting to onlookers, and no doubt profitable to many who are able to act upon the suggestions and instructions

advanced. Recent Apple and Pear Conferences have doubtless done something towards quickening those concerned into a more systematic and sustained effort to meet to a greater extent the ever-growing demands for these fruits from British orchards and gardens. It has, however, been the conviction of many who took part in these Conferences that they were projected and carried out on not very good lines, inasmuch as that collections made up of every scrag of an Apple or Pear that would exist in a locality were invited, instead of selections of the best comparatively few sorts that crop the most certain, and are worth storing or marketing when produced. The Conferences and the Blue Books concerning them were alike bewildering and embarrassing. A much more simple and effective method of instructing by such gatherings would have been to have invited growers to come forward with two, or at most three dozen of the sorts that were best all round for their districts, instead of a nondescript collection of mostly worthless varieties, for it is the opinion of those best able to judge that if the home demand is to be more fully met from our own orchards it must be done, not with collections, but with very limited selections, as at Chiswick last year. We want growers more than pomologists, growers who will concentrate their energy and skill on the peculiarities of the sorts which are best worth growing. It would be well if, in this respect, we took a leaf out of brother Jonathan's book. He does not load our Atlantic liners and crowd our quays with all imaginable sorts, but with enormous quantities of a few varieties skilfully sorted and packed.

All that has lately been said and done to swell our home Apple and Pear supply will doubtless do much good. Nevertheless it will not be of much practical use to many who are so situated as regards soil, and especially climate, that to attempt to grow Apples, and especially Pears, with success is simply impossible. The great mass of consumers in such districts must always look to distant producers for their supply. It is a wonder that amidst all the "plans" for improving Ireland and Irishmen little or nothing is said of fruit culture. I have a very vivid picture in my mind's eye of the most splendid crops of Apples in the north of Ireland I ever saw.

The hopeless and long continued struggle of many of us, against adverse circumstances, to produce, in many gardens especially, Pears fit to be eaten—even when they can be had in any shape—speaks much more for the patience and perseverance of both owners of gardens and gardeners than for their wisdom. In common with many others, no doubt, I have practised in districts where it was comparatively easy to secure crops of these fruit in highly presentable samples, and found that in other districts such success was simply impossible. In the latter wall trees have been nailed, and pruned, and lifted, and root-pruned, &c., while their produce, over a series of years, would not disburse the nail and shred bill. No doubt it is natural, and to some extent laudable, to attempt the supply of our own tables out of our own gardens, but in very many places Apples, and especially Pears, cannot be produced fit for a good dessert when they do condescend to smile on our efforts.

Good luscious Pears in autumn and winter are always a welcome feature of the dessert, and well they deserve to be. Now that glass houses can be erected at such comparatively little cost, there is no reason why the very best Pears should not be grown even in Britain's worst climates; and in many cases it would be better to clothe walls devoted to them with Currants even, and put up a house for Pears. The wonder is that this has not been more frequently done. Peach houses go up in great numbers, and who will say a single word against the Peach? This, however, can be said as between it and the Pear. The Peach cannot be stored and husbanded till the time that other fruits are scarce as Pears can, and the cultivation of the Peach involves twice the labour, if not more, than Pears require.

The quantity of splendid Pears that can be taken annually from an orchard house, say 50 or 60 feet long, 24 feet wide, and of proportionate height, with a small amount of labour, would astonish many who are not conversant with the results of such an arrangement. It is imagined and said by some that orchard-house Pears are deficient in flavour because less exposed to the air. This may be, and doubtless is, the case in wrongly constructed houses; but where the ridge and sides of a house can be extensively opened for ventilation the very reverse is the case, for the quality of the fruit is superior, and no finer looking nor finer flavoured Pears can be produced by any other means. In a properly constructed orchard house there is as much of a circulation of fresh air, often more, than in the open.

Let well drained not over-deep borders of, for the staple, good sound loam be put into such houses, and the sides and roof clothed with single cordons on the Quince stock 2 feet apart, the body of the house stocked with pyramids or open bushes on the same stock, and all other things being equal I do not know how a more splendid or serviceable return can be had from a glass house. The

single cordon is to be recommended, because in a limited space varieties sufficient to give a supply over a long season can be planted, and when one has to be substituted for another it can be done without causing large gaps. Both cordons and bushes can now be supplied by nurserymen in a bearing condition at reasonable prices, and so well do the Quince roots bear removing that in most instances fruit is produced the first season, so that long waiting is not necessary. The trees should be planted sufficiently deep to cover the union of the Pears with the Quinces. I do not recommend rich borders to begin with. Some bones should be mixed with the turfy loam when the border is first made. When Pears on the Quince are in full bearing it is scarcely possible to over-feed them, and in a well-drained border they take large supplies of water. My experience of these trees leads me to say all I can against summer pinching, and I never touch the trees in the way of pruning or pinching till I am well satisfied they will not break into growth again. The autumn pruning when in leaf and fruit is nearly all the pruning required.

Pears are not nearly so troubled with insects as Peaches and Plums under glass. They are, in hot seasons, sometimes attacked with red spider, but the hose or engine soon clears them off. If the Pear scale should be found on any trees from the nursery petroleum and water soon make short work of that enemy. When a Pear happens to make its appearance outdoors in this region of rain, cloud, and late spring and early autumn frosts, the difference between it and its fellow under glass is scarcely describable. This refers as much to flavour as to appearance. Pears under glass come with a clear shining speckless rind. The trees crop regularly too if the imprudence of heavy crops is avoided. This is, however, a sore temptation when none can be had outdoors, and a large family demand has to be met.—D. THOMSON.

EMIGRATION OF GARDENERS.

(Continued from page 60.)

BEFORE our friend proceeded to follow his own business—*i.e.*, that of gardener, inquiries were made as to the prospects of the leading horticulturists in New York and Boston, with the result that accompanied similar applications in this country—*viz.*, "Glad to be of service, but too many applicants; more hands than we know what to do with;" but one leading firm in New York on receipt of his testimonials (English) requested to be called upon, or would write when anything suitable offered. Becoming impatient a start was made on All Fool's Day for Boston, the Maine farmer seeing our friend off with "tearful eyes," taking, as it proved, "a last fond look," for when our gardener wanted a friend the farmer had joined the majority.

Boston (Massachusetts) was drawn blank, and the leading firm in New York had no prospects, consequently work had to be sought elsewhere, and was secured in Long Island, thirty miles from New York, on an Asparagus farm—*i.e.*, the farmer had thirty-two acres of Asparagus, where a stay was made of two months, or during the Asparagus season, at 22 dols. per month and board. The Asparagus heads were tied up in bundles about 5½ inches in diameter at the bottom, 4 inches at the top, and 6½ inches in length. Five hundred bundles were sent off daily on the average the whole season, realising from the salesman in New York 17 cents per bundle. Nine men were employed in cutting, &c., the crop being considered a paying one. The soil was very sandy, New York manure was largely used, the blanching system of culture was practised, the soil being ploughed over the rows, which were 4 feet apart, and after cutting, the soil was ploughed off. Cutting Asparagus commenced on May 6th, and ceased July 4th.

Passing into Pennsylvania our friend gained employment in haymaking, Wheat and Oat harvesting at 2¼ dols. per day with board. Moving south, Delaware offered nothing better than hoeing Sweet Corn and gathering Tomatoes for canning at 1½ dol. per day, finding his own board, the labour being for the most part supplied by coloured men. Maryland was entered in the time of cutting Yellow Corn. When it is dry it is pulled off in cobs, husked, and carted to the barn. The corn stalks are carted when matured, and used as fodder for cows. Work of that kind was paid for at 75 cents per day with board, or 15 dols. without board, the labour being coloured; in fact, the farm to which these remarks apply is owned by a coloured farmer, both himself and wife being at one time slaves on the same estate. This was in the neighbourhood of Texas, twelve miles from Baltimore. It was now October, and as winter must be passed a move was made to Baltimore. Gardening being at a discount, an engagement was entered into for three months oyster dredging at 17 dols. per month and board. This was found a very rough and hazardous mode of getting a living, but being midwinter an engagement was entered into with another master for another three months, or until the end of March. This work was remark-

able only for the uncertainties of harvest and of life, and the recoups were sought by poaching the "reserves."

On April 1st, 1887, our adventurer set out for Philadelphia, and obtained work with a florist at once at 20 cents per hour the first month, and for the remainder of the season (to October inclusive) at 35 dols. per month with board. The "western craze" at that time rose to fever heat with those that had saved a few dollars, and our friend fell a prey to the epidemic; but as winter was no time for explorations, the setting out was deferred until spring, and as dollars will not keep any more than crowns in England without wearing the pockets out, a trip was decided on to the "falls"—Niagara of course—and the "lakes." Work of that kind soon euded the dollars, which made no difference only in the exchange of spending to earning, as work came in the shape of chopping wood—i.e., felling Pine timber or lumber—eleven miles from Toronto, Canada, at 19 dols. per month and board, there being nineteen men, "I being the worst man and the worst paid, through only being capable of trimming," the "choppers" getting 32 dols. per month and board. This lasted eleven weeks, snow a yard deep, messing in a log house. Ice cutting on the lake Ontario afforded employment for a fortnight at 1½ dol. per day without board. Ice 2 feet thick, clear as crystal, was stored in ice-houses double boarded—i.e., with a space between the boarding, the ice put in in blocks, all cracks or interstices filled with sawdust, covering with a good thickness of sawdust, and over all with straw.

Gardening prospects being very uninviting in any part of the Canadian Dominion a move was made to Buffalo, then on to Cleveland, Ohio, without prospect of work of any kind; hence a start was made to Chicago, meeting with the "cold shoulder," as the German gardeners were preferred. Experience, however, always tells, thus a job was obtained on a grain-laden steamer bound from Chicago to Milwaukee as deck hand—i.e., load and unload at 8 do's. per return trip. Spring had now returned, therefore he set out for St. Louis, Missouri, getting work in a vineyard, disbudding and tying Vine shoots at 1½ dol. per day without board, refusing a strongly urged permanent engagement, as the "western craze" had not been cooled by the cold of the Canadas, or if it had the fever broke out strong again, so a journey was made from St. Louis to Kansas. No work there for gardeners; in fact, the German element again predominated; therefore the course was pursued due west into the wilds, with nothing but cattle ranches, very few settlements, and homesteads twenty to thirty miles or more apart. There the "almighty dollar" lost its potential attributes. Cowboys are described as "gentlemen at home," and yet will take "your last dollar for a revel;" even the Indians in the Reserve were "careful to entertain strangers." Enough!—gardeners have no business west, and the "fever" having abated a start was made to Memphis, Tennessee, where work was had at cutting Wheat-heads only, the straw being not more than a foot high; the pay, 2 dols. a day with board. From this point (Memphis) worked up the river (Mississippi) as far as Dakota, harvesting all the way, getting 2½ dols. per day with board. The work being finished in Dakota, and having some cash (though but paper) a trip was resolved on—not north, as the rigours of the Canadian winter yet obtained in the recollection. South; therefore made New Orleans, Louisiana, by river—a long trip, the incidents of which need not burden our theme.—UTILITARIAN.

(To be continued.)

FLOWER CULTURE FOR PROFIT.

TEA ROSES PLANTED OUT.

ALTHOUGH Tea Roses succeed well in pots when on their own roots, they are more profitable when planted out under glass, this whether trained thinly over the roof or grown as large bushes. In the latter case a span-roofed house may well be given up to them, the Roses being either put out in raised borders or on a level with the single pathway through the centre. In addition to the bushes grown in the body of the house a few might also be trained thinly up the roof, or say one at every principal rafter, or at 4 feet distances, about three leading growths being laid in each instance without unduly shading the other occupants of the house. If blooms are wanted as much as possible throughout the winter these may be obtained without very hard forcing and without detriment to any plants of Maréchal Niel there may be trained up the roof, and as this is undoubtedly the most popular of all Roses it is advisable to give the greater portion of the rafters up to it. Neither a very deep nor an excessively rich border is needed by Roses, and we find a depth of 30 inches, including about 6 inches of rough drainage, ample. Nothing suits them so well as a compost consisting of three parts of light turfy loam roughly chopped up to one of good leaf soil, a moderate amount of grit, a liberal

sprinkling of charred garden rubbish greatly improving the mixture. If there is no fibre in the loam then ought a rather smaller proportion of this be used and a part of old Mushroom bed refuse added. In this the Roses ought to be planted firmly, and if disposed about 3 feet apart each way will occupy all the space without becoming unduly thick.

In many instances only the roofs of greenhouses can be given up to Roses, and in this case if they are thinly trained, Azaleas, Camellias, Clivias, Ferns and a few other plants will thrive very well underneath. Not unfrequently narrow borders, raised or otherwise, might be formed underneath the staging along the front of the house, but if it is more convenient the Roses will succeed nearly or quite as well planted outside and brought through the front walls or just below the sills. Ours outside are 2 feet wide, the same in depth, being raised about 1 foot above the level and enclosed by a 4½-inch brick wall with a cemented top course. We have roof-trained Roses both on their own roots and worked on healthy Briar stems, and in this case the latter answer equally as well as own-root plants. We find Maréchal Niel just as liable to canker and fail on their own roots as on the Briar, but would not plant any worked on the Manetti stock if they were given to us, these being most liable to canker, but to this I must again briefly refer. In addition to Maréchal Niel there are a few other varieties of Tea or Noisette Roses admirably adapted for root culture, notably Safrano, Lamarque, Homer, Reine Marie Henriette, W. A. Richardson and Cheshunt Hybrid, the two first named being my favourites. Each ought to be capable of covering a roof area 12 feet by 10 feet, the Maréchal Niel covering double that space in a comparatively short period. Moderately strong wires 10 inches apart taken across the roof through eyes screwed into the rafters, and not less than 9 inches from the glass, another 3 inches not being too much for Safrano, is all the trellising needed for the spreading plants, while for rafter Roses about three wires, 6 inches apart, may be very simply strained up the roof.

Much pruning and training are not required by Tea Roses, though they ought not to have matters too much their own way, or they may quickly wear out. At the outset they should be staked uprightly, and only lightly shortened back, and being in good health may be permitted to develop a few blooms, but will be profitable or not according to the quality and quantity of strong suckers that push up from the base. These will branch and flower grandly, thus stopping themselves, and subsequent pruning consists merely of cutting all blooms as they form, the shortening back of straggling brauches and removal of all spray in October. There being good room some of the stronger branches ought to be staked out, the slight depression given to these causing them to push up stray shoots certain to produce extra fine blooms. Occasionally an apparently worn out plant will be renovated by being freely cut back, and partially thinning out the main branches every autumn will serve to keep others in robust growth. The roof plants, with the exception of Maréchal Niel, and in a lesser degree Lamarque, may be treated very similarly to the bushes, the roof being gradually covered with the best of the shoots formed, these inevitably flowering abundantly as they advance. In time the roof becomes covered with branches, and each autumn, or after a comparative resting period, these should be freely thinned out and shortened back to about half their length, the more weakly spray being cut cleanly out. Lamarque is of very vigorous habit, forming long shoots during the summer, and which at pruning time should be only lightly shortened, grand blooms being pushed out from nearly every joint on all well-matured growths. Maréchal Niel will be referred to in my next communication, and the prices that have been obtained for Roses stated.—M. H.

PLANT FOOD.

ONE of the signs of the times, speaking horticulturally, is the extent to which chemical manures are now employed in gardens. I suppose there are few gardens in which they are not in use to the benefit of crops. Now, though it has not been my practice to purchase made manures for many years, still I have often had opportunities of testing these, and it is only fair to say that, though many of them are expensive, still taking into account the small quantities required in gardens, and the good results which invariably follow their use, they cannot be said to be dear. One of the largest manure manufacturers told me the other day that their experience with gardeners, among whom they are trying to establish a general manure, was that they had an objection to cheapness. I do not know about that, but there is such a thing as being penny wise and pound foolish, and if a gardener thinks he can procure a better manure by paying a few shillings more each year there is nothing blameworthy in that.

Then, again, it is only fair to say that gardeners have had little help from men of science, who have devoted their researches almost as exclusively to agricultural subjects, with the result that farmers with any intelligence worthy the name are in a position to purchase those manures best suited to their land and crops at a very reasonable price. We occasionally meet with an unbeliever in the efficacy of chemical manures. These are said to be either scourges which take every particle of good out of the soil, or they are held to burn the crops, and in either case are to be given a wide berth. No doubt it is possible that both these things may happen; but, as has been often said, the bad shillings do not prove that every shilling is bad, and therefore to be shunned. I think also that it is a great mistake to look upon these manures as stimulants, and of value merely to give an extra push at a critical period to the already hard-worked plant. They may be useful in such cases, but such a view does not give a fair representation of their value. A good chemical manure is essentially a food, and as such is to be made use of in the same way as we apply water—that is, in order to meet a felt want. In a certain sense farmyard manures are stimulants, for if employed indiscreetly it is found that they produce a rushing growth followed by collapse, the principal reason for this being the absence of those elements of plant food which are or should be present in every carefully prepared chemical manure.

There is perhaps nothing more difficult to estimate than the quantities of such food required by plants. For one thing soils differ so much, some holding in sufficient quantity one or other of the foods which chemistry is in general obliged to supply. Or if applied to a soil its retentiveness may be of so poor a nature that a heavy rain may practically destroy the best part of a good dressing, while the same rain in the case of soil of a retentive character would simply diffuse the manure through the upper strata, and make it more available for plant roots. Generally, therefore, each cultivator must find out for himself what is best to do with his own particular land. In fruit borders and flower borders under glass the case is much simplified, and as regards pot culture we have the matter practically in our own hands.

In order to make the remarks which follow plainer it may be indicated that plant nutrition is largely in the hand of Nature, the bountiful mother having supplied to a wonderful degree the wants of her inanimate children; but chemists long ago found that a few elements were presented in too slight proportions to meet the wants of plants when cultivated. None of these entered very largely into the composition of plants, but slight as their position is they could not be dispensed with, and the plant kept in health and vigour at the same time. By means of water culture—that is, growing certain plants in water with the addition of some chemical elements—German chemists many years ago demonstrated the necessity of the presence of in order that plants might perfectly fulfil all the functions of their nature. About the same time a French chemist was showing that soils—that is, cultivated soils—contained sufficient food for plants with the exception of a few elements. Thus, Professor Wolff to 1000 parts of water had 938.028, and of solid matters 61.972, or to 94 per cent. of water added 6 per cent. of solid matter. In 1000 parts these solids were thus proportioned:—

Phosphoric acid	...	...	...	...	...	8.234
Lime	...	...	...	...	...	10.370
Potash	...	...	...	...	...	9.123
Magnesia	...	...	...	...	...	1.403
Sulphuric acid	...	...	...	...	...	2.254
Chloride...	...	...	...	...	...	0.885
Nitric acid	...	...	...	...	...	29.703
And one drop of ferric chloride.						

Other chemists proved that a plant performed all its functions properly with a ratio of solids to water of one to over 3000. Ville, the French chemist, whose researches have practically revolutionised agricultural chemistry, showed that nitrogen, potash, phosphoric acid, and lime were the only foods necessary to add to the least fertile soils. Instead of water Ville employed calcined sand, and by the addition of soda, magnesia, sulphuric acid, chlorine, ferric oxide, silica, manganese, nitrogen, phosphoric acid, potash, and lime proved that with the addition of water and the carbonic acid derived from the air plants performed all their functions perfectly. But Ville was a practical chemist, and on a farm where he made experiments he found that the soil had in sufficient quantities for the food of plants the seven minerals which supply the soda to plants, but that nitrogen and the other three must generally be introduced by the cultivator. Curiously enough, however, any one of these foods may be within reach of plants, but impossibility to assimilate the particular food renders its presence of no use—thus the atmosphere is diluted with nitrogen, an element which enters largely into the albuminoids of plants, yet only a certain group of plants are capable of securing a sufficiency from the air. Very much the

same remark applies to the mineral agents which may be present in soils, but in a form which the plant cannot reduce to a useable condition. It will be seen how the base on which plant feeding rests has been simplified. In another paper I hope to have something to say on the more practical matter of feeding plants.—B.



HYBRID DENDROBIUMS.

THE hybrid Orchids raised and sent out within the past ten or twelve years have taken prominent positions amongst the most beautiful plants in cultivation, and the genus *Dendrobium* has contributed liberally to the list of favourites. At least twenty distinct hybrids have flowered and been described, some have been illustrated, and a few have been certificated. They all possess some special characters of their own, but one remarkable fact must strike an observer who has given some attention to these hybrids, and that is the regular manner in which the floral form and habit of the parents are combined in the seedlings. This occurs even where the crosses have been reversed, and the experimental hybridiser may fairly expect when he succeeds in effecting a cross that the characters of the pollen and seed plants will be nearly equalled combined in the offspring, whichever species is made the seed-bearing parent. The leading practical results of hybridising *Dendrobiums* have been to increase the diversity of colouring, to impart or add to the fragrance, and to prolong the duration of the flowers, with, in several cases, greater vigour of habit.

A brief review of the principal hybrids that have yet flowered will illustrate what has been accomplished amongst the *Dendrobiums*, and for convenience they may be taken in alphabetical order. First, then, is *D. Ainsworthi* from *D. aureum* crossed with *D. nobile*, which originated in Dr. Ainsworth's garden at Lower Broughton, near Manchester; it first flowered in 1874, and was certificated by the Royal Horticultural Society February 18th of the same year. This is one of the best known and most beautiful hybrids yet obtained amongst the *Dendrobiums* either in the ordinary form, which has white sepals and petals and rich crimson lip, or in the more deeply coloured variety roseum, admirably portrayed in the first volume of Mr. B. S. Williams' "Orchid Album" (t. 20). The lip shows the influence of the two parents, for while the form closely resembles that of *D. aureum*, the colouring is that of *D. nobile*. The flowers are large, freely produced, the plant is of strong habit, and the feathering of the crimson blotch on the lip imparts a distinct appearance to the flower, which is readily recognised. *D. Leechianum* and *D. splendidissimum* come very near in characteristics to *D. Ainsworthi*, and are from the same parents.

Several hybrid *Dendrobiums* are but little known, and amongst them we must count *D. chlorostele*, raised at Burford Lodge, between *D. Linawianum* (*moniliforme*) and *D. Wardianum*. It has white sepals, petals white at the base, purple at the tip, the lip rich purple in the centre, and with a zone of pale yellow, the column green. *D. chryso-discus*, and its variety *oculatum*, are also Burford Lodge hybrids from *D. Ainsworthi* and *D. Findlayanum*, the former being the pollen parent. It is distinct, but the seed parent's characters predominate, the lip resembling that closely in shape, but differing in colour. The greater portion is white, with a dense bronzy red and yellowish blotch at the base. The sepals and petals are bluish tinted, giving the white flower a very delicate appearance. The original hybrid was certificated by the R.H.S. in February, 1888. The variety *oculatum* has rather more colour in the flowers, and a reverse cross has been named *melanodiscus*. *D. Cybele* (*Findlayanum* and *nobile*), one of the Veitchian hybrids, is noteworthy for the fact that the pollen parent (*nobile*) has here had the greatest influence, the peculiarity of the *Findlayanum* growth being slightly retained, also a little of the lip colouring. *D. Dominionum* (*nobile* and *Linawianum*) is interesting historically as presumably the first hybrid *Dendrobium* known, having been raised by Mr. Dominy in Messrs. Veitch & Son's Exeter Nursery. The flowers are purple, tinted deeper in the lip, and altogether distinctly of the *nobile* group.

A valuable addition was made when *D. endocharis* was raised in

the Veitchian nursery at Chelsea. In this case *Dendrobium japonicum* was the seed plant and *D. aureum* supplied the pollen, the result being a peculiar intermixing of characters and a most useful hybrid. The flowers are nearly white, the lip having a basal purple blotch, and they possess a delicious fragrance resembling Violets. In habit the plant is more like *D. aureum*, strong growing and most floriferous. A *Dendrobium* with such characters was not likely to be disregarded by such a close observer as Mr. Seden, and he soon utilised it as a seed parent, a cross with *D. nobile* producing the beautiful *D. euosmum* and the variety *leucopterum*. In the original form the sepals and petals are white, tipped with pale purple, the lip having a deep purple central blotch. The exquisite fragrance of *D. endocharis* is here combined with the floral attractions of *D. nobile*, the result being all that could be desired in a *Dendrobium*. In the variety *leucopterum*, shown by Baron Schröder and certificated by the Royal Horticultural Society April 9th, 1889, the flowers are of medium size, very delicate and beautiful, the sepals and petals narrow and white, the lip long, crimson in the centre, the apical half pure white. It is of slender growth, but free flowering. Another variety named *roseum* has also been noted.

Coming now to a more recent production we have in *Dendrobium Juno* (fig. 13), shown at the last meeting of the R.H.S. Orchid Committee (Jan. 14th, 1890), by Sir Trevor Lawrence, an exceedingly handsome hybrid well meriting the certificate awarded. It was raised from a cross between *D. Wardianum* and *D. Linawianum* (*moniliforme*), and again we have to remark the strange fusion of characters that occur in so many hybrid Orchids. The flowers are of excellent shape, the sepals and petals broad, but especially the latter, white, deeply tinged with rich crimson from the apex towards the base. The lip is nearly circular, having a maroon central blotch bounded by a yellowish tinge, then a white zone and a purplish marginal band. In form and colouring this will rank with the best of the artificially raised *Dendrobiums*.

Dendrobium Leechianum, of which a flower is represented in fig. 14, resembles *D. Ainsworthi*, but is much larger, the sepals and petals being tinged with bright purplish crimson, like some fine varieties of *D. nobile*. The lip is large, open, and marked with very rich crimson in the throat, the tip being also tinged with a similar colour but somewhat lighter. The petals are broad with a wavy margin, and the whole flower has an appearance of great substance. A great additional recommendation is the sweet fragrance it possesses, like *D. aureum*. The plant flowers very profusely, and lasts for a considerable time in beauty.

Some time ago Mr. Swan wrote me as follows concerning the origin and qualities of the hybrid:—"I flowered several of the

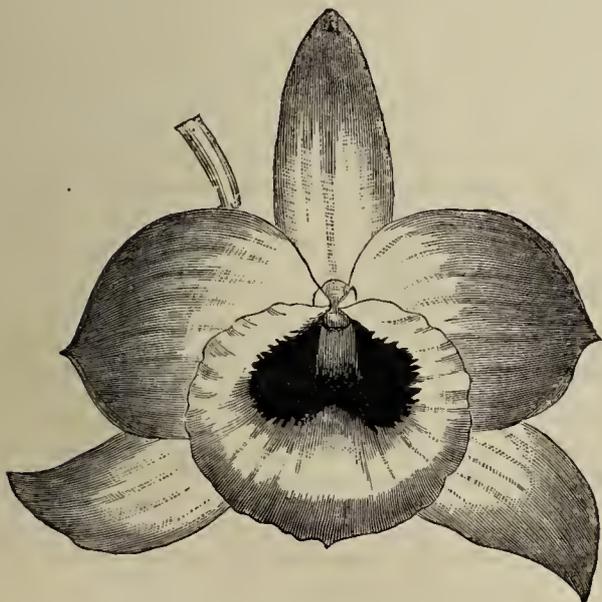


FIG. 13.—DENDROBIUM JUNO.

plants in 1881 during January and February, and then considered them sufficiently distinct to deserve a name. I find it a free grower and an abundant bloomer, and one of its chief recommendations will be that it may be hastened into flower by Christmas, and by keeping it quiet and cool it may be retarded till March and April, or probably even later. The parents were *D. nobile* and *D. aureum*. *D. nobile* was fertilised in January, 1875, with pollen

taken from a strong plant of *D. aureum*; in fact this was one of the strongest pieces I have seen, with growths 2 feet long covered with bloom. The flower of *D. nobile* soon withered but did not fall, the seed pod quickly formed, and the seed was ripe, and sown in June of the same year on the top of a basket containing *Dendrobium crassinode*. The seedlings were first observed in February, 1876. Being so small I did not disturb them for some time. However, when they had pseudo-bulbs about three-quarters of an inch long I pricked them out into two pots and hung them up in

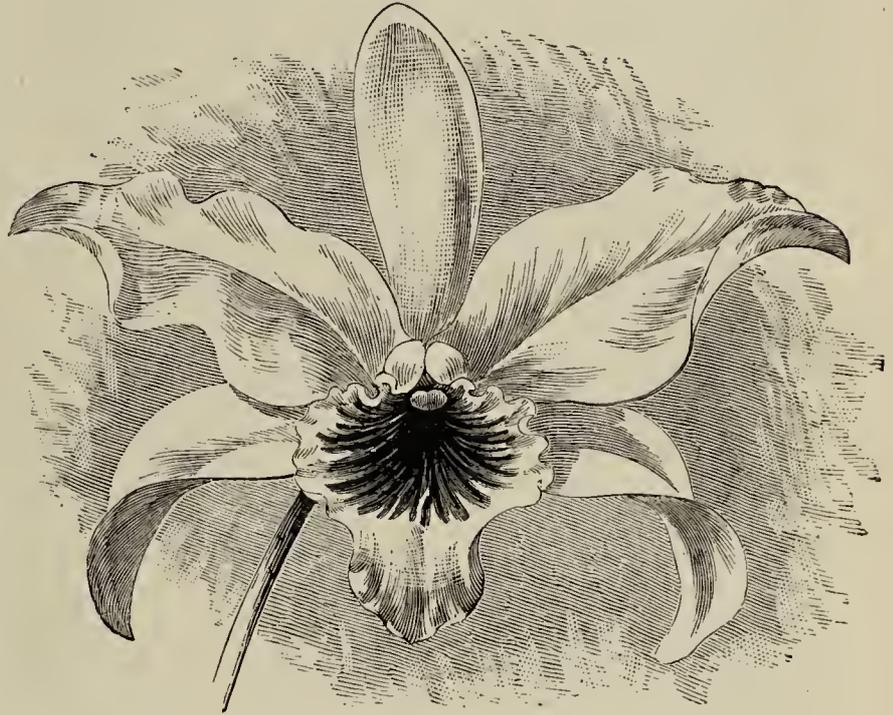


FIG. 14.—DENDROBIUM LEECHIANUM.

the East India house. They continued to grow well, so that by the spring of 1880 I placed many of them in baskets 2 inches square."

Another of the Burford Lodge hybrids is *Dendrobium Luna*, shown and certificated on Jan. 14th last. It is a hybrid between *D. Ainsworthi* and *D. Findlayanum*, the pseudo-bulbs and growth resembling the latter parent. The flowers are about 2½ inches across the lip, nearly circular, but somewhat oval, creamy white, yellow at the base, with a few purple veins in the centre. The sepals and petals are creamy white, faintly tipped with purple, the petals slightly broader than the sepals. The flowers are borne on short racemes of three or four each, and it appears to be both free-growing and free-flowering.

The other hybrids in this genus must be dealt with very briefly. *D. micans* (*Wardianum* and *litiflorum*) has rather attractive white and purple tinted flowers, and a shiny wax-like surface. *D. porphyrogastrum* (*Huttoni* and *Dalhousieanum*) is an interesting hybrid, in the flowers of which mauve and purple colouring predominates, with somewhat of the pollen parent's floral form. *D. rhodostema* (*Huttoni* and *sanguinolentum*) partakes largely of the pollen parent's characters. *D. Schneiderianum* (*Findlayanum* and *aureum*), raised at Fallowfield, possesses the habit of the seed parent and the principal floral characters of the pollen plant, except that a purple tint is introduced. *D. splendidissimum* (*aureum* and *nobile*) is the reverse cross from that which resulted in *D. Leechianum*; it is very similar, but the variety *grandiflorum* is much superior in size, and is indeed one of the finest of the section yet obtained. *D. Vannerianum* (*japonicum* and *Falconeri*) has delicately pretty flowers, white tinted and tipped with purple. Other crosses have been raised, but have either not flowered or have proved too much like one of the parents to be distinguished under special names. In some cases this is probably due to the crosses not being satisfactorily effected, in others perhaps to accidental defects of condition or organism in one of the plants.—LEWIS CASTLE.

STORED ROOTS.—These will play an important part in the supplies during the next three months, and they should be preserved as well as possible. Where they have been stored in large heaps some may be decaying, and these should be thrown out, all indications of growth re-

moved, and then store anew. Onions that are beginning to sprout should be discarded, and the soundest of the bulbs placed on one side for late use.—M.

NOTES ON FORCING VEGETABLES.

CAULIFLOWERS.—The Cauliflower is one of the best of vegetables, and very highly esteemed, especially if it can be had early. It is true that there are some good late Broccolis so late that there need be but a short interval between them and the early Cauliflowers out of doors. But in some districts in the north, and especially in this part of Lancashire, Broccolis are sometimes destroyed by severe frosts and continued wet weather. I may say the sorts that I have found stand the weather best here are Sutton's Late Queen, Leamington, and Knight's Protecting. This winter up to the present Veitch's Model and Gilbert's Late Queen are standing well.

But to return to the Cauliflower. It is by no means difficult to have fine heads fit for use quite a month or six weeks earlier than they can be had out of doors, provided a pit heated by hot-water pipes or a sufficiently deep frame can be spared for them. The seed should be sown in the end of August or early in September, and when strong enough should be lifted and wintered in a cold frame.

In the beginning of February or earlier the pit or frame should be prepared by placing a thick layer of manure over the bottom, then place over this about a foot depth of fibry loam, or the best soil that can be had. If manure cannot be had some approved artificial manure should be well forked into the soil before planting, and a little sprinkled round the plants and watered in on two or three occasions during their growth will prove very beneficial.

When the pit is ready to receive the plants lift them carefully with a trowel from the frame in which they have been wintered, and plant them in rows 2 feet apart, and 18 inches or 2 feet from plant to plant, then water with a pot without the rose, and if the work has been properly done they will have received little or no check, and will grow away. Begin with a temperature of 50°, gradually rising to 60° with plenty of ventilation on all favourable occasions. As they advance in growth they should never be allowed to suffer through insufficient watering. As the heads are forming liquid manure should be given about three times a week. In about three months after planting nice white heads may be looked for. Early London and Dwarf Erfurt are good sorts for early work.

PEAS.—Few attempt to force this vegetable to any extent. They are, however, sometimes grown on the border of a Peach house to a limited extent, and found to produce their fruit tolerably well. Anyone attempting to force them in this way should give them all the ventilation possible without injuring the Peaches in order to have them sturdy.

We do not advocate growing Peas in this manner unless they are specially wanted, but they may be with advantage brought on under glass for planting out as soon as the weather is deemed suitable. For this purpose some use turf, some pots, and others boxes, and Peas may be forwarded very successfully under all the different modes.

I prefer narrow boxes 8 or 10 feet long with holes in the bottom. They are only temporarily nailed—that is, the nails are not driven close in, but sufficient is left to be taken hold of by a pincers, so that when they are taken to the drills where they are intended to be grown, the boxes laid on their side by the drills, the nails can easily be pulled out, the bottom off they are placed in the drill and the sides lifted over the tops. In this way the soil is not broken, and the plants receive no check. There are plenty of early varieties, the thing is to find out what sort does best in the soil and district. I have found Veitch's Selected Extra Early do well here, followed by William I. Peas forwarded in this way should not be brought on in too strong a heat, or they will be drawn up weakly. The thing to aim at is short sturdy growth. They should be well exposed before being planted out.—G. HILTON.

ALLOTMENTS.

I KNOW very little of the terms of the recent Allotments Act, but if as I have been informed that under the stipulations it affords reasonable facilities for respectable and industrious working men to acquire a piece of land for their own use at a reasonable rent, it rests entirely with them to prove that it is of real benefit. First of all, a man ought not to aspire to a larger holding than he can conveniently attend to, as one man's spare time for such work is no guide to that of another, and a small plot well cropped and otherwise well attended to is much more creditable to its occupier than a larger one where slovenliness is conspicuous; besides, the

quality of the produce is of treble value. And, again, it is very unjust to the hard-working man, whose plot may be in the best of order, to see his neighbour's plot overrun with weeds, the seeds of which are blown in all directions. A periodical inspection by those in authority would do good, warning such as neglect them that they run the risk of having to quit their holdings.

Allotment holdings are not new in the country, because many landed proprietors have for years set off a convenient portion of their land for the purpose; and one of the best that I know in the south of England is on the Chilston Park estate, the property of Mr. Akers Douglas. There is a field of about twenty acres, irregular in shape. It has, however, been squared off with cart roads running in two or three directions for the convenience of occupiers, and the land laid out in half an acre, quarter, and one-eighth acre portions, with paths of convenient width running between each. I have known this as an allotment field for over thirty years, although I am told it has been known as such for more than twenty years beyond that time, but the system of inspection above described has always existed and worked satisfactorily. The rent charged is at the rate of 32s. an acre free of all taxes. The 11th of October is the time for changing or reletting. The soil is principally a light sandy loam overlying a thick bed of red sand, consequently it is much improved by the addition of road sidings and plenty of manure, yet the soil is not difficult to work.

For one to notice, as I have done, the difference between the ideas and methods of cultivation and cropping twenty or more years ago, and at the present time, it is remarkable to see the improvements that have taken place. At the former time and for years after little besides Potatoes and Turnips were grown until the soil became "Potato sick," and crops were very poor, but now all things are changed for the better. The ground is well manured, as during recent frosty and moonlight nights I saw several men and boys wheeling out the manure there. During the day others were digging the manure in, but it may be as well to enlighten my readers upon the subject of how the manure is obtained. First of all is by careful collecting of manure from the highways, which is mixed with road sidings, mud from ditches, ashes, and other refuse, together with a good portion of pig manure (as most of them keep a pig), and a quantity of lime added, which is frequently turned before using. A few join together and purchase a quantity of London dung, which they get down by rail to within half a mile of the field at the rate of 4s. per ton, while some purchase a few bags of "wool waste" of 5 cwt. each. This has been found a most lasting manure, and is used more for fruit trees, but is too expensive for general purposes.

Now about cropping. This is done in a more practical way than formerly, for while most of them grow a variety of vegetables as well as Potatoes for their own use, others grow Mangold Wurtzel, Swede Turnips, and cattle Carrots, and then market their produce, yet several have planted their holdings with Gooseberries, Black and Red Currants, all of which they sell.

One man, Collins by name, planted his half acre with Strawberries and Raspberries, a quarter of an acre of each, and according to the returns he showed me for last year they must have paid him handsomely. His account was a little over a ton weight of Raspberries and just under a ton and a half of Strawberries, all sent to the London market. On two mornings I see he sent as many as fifty-two pecks at a time of Strawberries, and several of forty, thirty, and less. The sorts are Sir Joseph Paxton, President, and Trollope's Victoria, while of Raspberries he grows only Carter's Prolific, a sort much sought after in this locality. The whole plantation is three years old, and looks promising for the coming season. When asking the man about the preparation of his land he said he only dug it deeply, but added plenty of manure, and since that has attended to surface hoeing and mulching, never digging amongst them. He also added that with the planting and subsequent use he had applied sixteen tons and a half of London dung alone. Although it was an exceptionally good year for small fruits, especially Strawberries, yet I must give the man credit for his venture, and wish him success in the future. The land being light the great enemy to ward off is red spider, which quickly attacks them, where, as is the case, there is no water to be obtained, hence the reason for mulching so heavily.—THOMAS RECORD.

EARLY CAULIFLOWERS.

SEED of Suttons' First Crop sown the first week in February and the plants grown sturdily will produce white compact heads the size of a pint basin by the first week in June. For two years I sowed to succeed plants raised in the autumn, but the autumn sowing followed those sown in February, consequently I have discontinued sowing in the autumn. I use a box 12 inches by 16 inches and 3 inches deep filled with soil; sow the seed thinly, and place in gentle heat. As soon as the seedlings appear the box is removed to a shelf in a greenhouse close to

the glass to prevent the plants drawing, care being taken in watering. As soon as the plants are large enough I place the strongest in small 60-pots; the rest are pricked off in boxes; they are then placed in a close frame for a few days, and gradually hardened until fit for planting out. Those in pots will well pay for the little extra labour, as they receive no check when planted out. Should the weather prove unfavourable after planting I turn an inverted pot over the plants at night, also on cold days to protect them from wind and frost.—T. N.



EVENTS OF THE WEEK.—To-day (Thursday) the Royal Society meets at 4.30 P.M. The Essex Field Club's annual meeting will take place in the Public Hall, Loughton, on Saturday, February 1st, at 7 P.M., and the Society of Arts will hold a meeting on Wednesday, February 3rd, at 8 P.M. Messrs. Protheroe & Morris announce an important sale of Orchids at their Cheapside Rooms on January 31st, in which *Vanda Sanderiana* will form a leading feature. Sales of *Lilium auratum* and other bulbs also take place at the same rooms every Wednesday.

— AT a meeting of the Trustees of the VEITCH MEMORIAL FUND held on the 23rd inst.—present Dr. Robert Hogg (in the chair), and Messrs. T. B. Haywood, G. F. Wilson, and H. J. Veitch—it was decided to give four prizes, consisting of four bronze medals and £5 each, at the Chrysanthemum Centenary, which opens on November 11th; and also a special silver medal each to Mr. Bruce Findlay of Manchester and Mr. David Thomson of Drumlanrig, in recognition of their valuable services to British horticulture.

— THE WEATHER IN THE SOUTH.—During the past week in the metropolitan district, and the south of England generally, the weather has been mild for January, with frequent and rather heavy rains. Strong winds have prevailed, and much damage has resulted in exposed positions and along the coast. In the West of England the damage has been greatest; much land is under water, and in the Vale of Gloucester it is reported that hundreds of sheep have been drowned by the Severn bursting its banks.

— THE WEATHER IN THE NORTH.—The temperature has been lower during the past week. On the night of the 22nd $5\frac{1}{2}^{\circ}$ of frost was registered. Very high winds and heavy rains have been frequent, the night of the 25th being especially stormy. Snow fell on the evening of the 23rd, and sleety showers over and again; these, with the melting of the snow on the hills, and the great rainfall, have brought down the streams heavily, and caused much flooding of the lower grounds. In my last note 40° at 9 P.M. on the 16th should have been 50° ; 40° has been quite common.—B. D.

— THE WORSHIPFUL COMPANY OF FRUITERERS.—The Master and Wardens of the Fruiterers' Company for each year are chosen on January 25th, the feast day of the Conversion of St. Paul, the patron saint of London. At a court held this year Sir James Whitehead, Bart., ex-Lord Mayor, was, in consequence of his exertions in promoting fruit culture, elected to all the privileges, including the position of Master of the Company for the ensuing year. In this capacity he presided at the annual dinner which was held at the Albion Hotel, Aldersgate Street, on Monday evening last, and was supported by the Lord Mayor, Sir Henry Isaacs; the City Sheriffs, Colonel Sir Nigel Kingscote, Major Craigie, H. R. Williams, Esq.; and civic dignitaries. About 100 persons sat down. Horticulturists were represented by Messrs. A. F. Barron, T. F. Rivers (Mr. Shirley Hibberd being unable to attend), and J. Wright, who, it may be safely said, did not give their adherence to all that was heard on fruit culture, though they did not appear to enjoy the proceedings the less on that account. A copy of Mr. Wright's essay, bound in morocco, and containing a beautifully illuminated frontispiece, which included a view of the Old Mansion House, the Arms of the Fruiterers' Company, and those of Sir James Whitehead, was presented to the Master by Mr. H. R. Williams. Sir James accepted it in graceful terms and publicly thanked the author for his useful work.

— APPLICATION OF PHOTOGRAPHY TO METEOROLOGY.—The Council of the Royal Meteorological Society have arranged to hold at 25, Great George Street, Westminster, on March 18th to 21st next,

an exhibition of instruments and photographs illustrating the application of photography to meteorology. I am therefore instructed by the Exhibition Committee to invite your co-operation, as they are anxious to obtain as large a collection as possible of such instruments. The Committee will also be glad to show any new meteorological instruments or apparatus invented or first constructed since last March, as well as photographs and drawings possessing meteorological interest.—W. MARRIOTT.

— GARDENING APPOINTMENT.—Mr. J. Leicester, late foreman at Hillsborough Castle Gardens, has been appointed gardener to Lord Farnham, Farnham House, Co. Cavan.

— WE are informed that the seventh annual Show of the HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY has been fixed for Wednesday and Thursday, November 19th and 20th.

— APRICOTS.—May I be allowed to ask the readers of the Journal who are successful in APRICOT CULTURE the best method to adopt which may tend to secure a crop in the Midlands?—C. R.

— VINCA MINOR VARIEGATA.—Can any of your readers inform me if there are two varieties under this heading, the one having white and the other blue flowers? The latter is now in bloom out of doors. I fancy we should have two sorts as stated, both variegated.—CORK.

— MAY not the old couplet as to SNOWDROPS quoted by Mr. Arnott in your paper of the 23rd inst. have been written when the old style prevailed, and have been quite applicable? Candlemas Day would, as regards the season of the year, have then fallen about what is now January 22nd.—FRANCIS STERN.

— THE TEDDINGTON CHRYSANTHEMUM SOCIETY'S annual Exhibition is announced to be held on November 13th and 14th, 1890, Mr. David Anderson, the Nursery, Teddington, being the Secretary. It is probable that the summer Shows of the Twickenham and Teddington Societies will be united this year, but the autumn Shows will remain distinct as before.

— IRISH APPLE, GIBBON'S RUSSET.—So much has been written lately on the merits or demerits of numerous well known Apples that I venture a word in praise of this little-known sort. Hitherto it has been localised in the south of Ireland, and quite possible neither scions nor trees have as yet reached England. I may be wrong. Can any of your readers give me the information?—B. H. C.

— PRESTON AND FULWOOD HORTICULTURAL SOCIETY.—The twenty-eighth monthly meeting of this Society (the sixth of the present season) will be held in the large room of the Castle Hotel, Market Place, Preston, on Saturday, February 1st, when Mr. William Bardney of Norris Green, near Liverpool, will read a paper, "Notes on Fruit Culture, Extension *versus* Restriction." Chair to be taken at 7.30, prompt, by the President.

— CAT EATING MELONS AND CUCUMBERS.—We have known dogs to eat Peaches and Strawberries, but a correspondent says his cat likes Cucumbers and Melons. "H. S. E." writes:—"I am fond of Melon growing, and enjoy a real good fruit. My children are the same, and we can always eat one right away. Even one of my cats is sure to eat one if he can get near enough; he has destroyed a fruit uncut before now. The brute also eats Cucumbers as they are growing."

— DOUBLE HYACINTH LA TOUR D'AUVERGNE.—For flowering at Christmas this old variety is invaluable. I saw during Christmas week several boxes of this excellent Hyacinth with spikes averaging 6 inches in length. They were planted close together in boxes very soon after the arrival of the bulbs from Holland, in ordinary Hyacinth soil, and were plunged out of doors in cocoa fibre refuse until fit to remove under glass, then placed in a cool house for a fortnight before, placing them in heat.—S. H.

— PEAR HUYSH'S VICTORIA.—We do not often see this mentioned, which to me is somewhat unaccountable. We have a good-sized well-formed pyramid of it on the Pear stock, and during the past nine seasons it has never once failed to bear a crop. Some seasons we have gathered two bushels of fruit from this single tree. We did so in 1888, and in 1889 we had fully three pecks of it stored for use during December. With us the fruits are somewhat small this season, but it is sound, and promises to be of good quality. Huyshe's Victoria is by no means a showy Pear, but it is very serviceable, and deserves a place or trial in most gardens.—I.

— ROSEMARY RUSSET APPLE.—We have received from Mr Turner of Slough very fine samples of this excellent dessert Apple, which he considers not only as one of the best in quality at this season of the year, but one of the most profitable to grow. In a plantation which includes many varieties in a bearing state this is regarded as the most productive, the trees being every year almost overlaid with fruits. Those sent are above medium size, $3\frac{1}{2}$ inches wide at the base and 3 inches high, narrowing acutely to the apex. They are more or less covered with russet veins, and flushed with red on the side next the sun. The flavour is sprightly and excellent, and the variety would seem to have claims to more extended cultivation.

— BLANCHING ENDIVE IN HEAT.—I have found it a good plan to take up and pot a few plants of Endive at intervals for meeting the demand, removing all decayed leaves, also the soil from the collars of the plants, which prevent any more decaying, giving water freely to prevent flagging. After allowing the water to drain off I tie a sheet of brown or white paper round the pot and plant, tying paper round the top for obstructing light. In this way the Broad-leaved Batavian can be blanched in about four or five days by placing the plants in a temperature of 60° to 65° . The curled or moss varieties will not endure so much heat. I have had plants of Endive perfect models of ivory white, fully compensating for the little trouble in producing them.—G. W. W.

— THE ESSEX FIELD CLUB.—The tenth annual general meeting will be held Saturday, February 1st, 1890, at 7 P.M., in the Public Hall, Loughton, Essex. The report of the Council for the year 1889 and the Treasurer's statement of accounts will be read and submitted to the meeting. The election of new members of the Council and Officers for 1890 will also take place. The annual presidential address will be delivered as follows:—The Migration of Birds, by E. A. Fitch, F.L.S., F.E.S. An ordinary meeting (the 111th) will also be held for the proposal and election of new members. Exhibitions of objects of natural history, geology, or microscopy, are solicited for the above meeting. Intending exhibitors are requested to communicate with the Hon. Secretaries, Messrs. William Cole and G. B. Cole.

— THE GREAT INTERNATIONAL HORTICULTURAL EXHIBITION at Berlin will be held from the 25th of April till the 5th of May, and we hear that the preparations have advanced in a most satisfactory manner. The Emperor, on the suggestion of the President of the Exhibition, Dr. Lucius von Ballhausen, has appointed the large gold State medal for the most meritorious horticultural production at the Exhibition, and eighty other medals will be granted. All the German Governmental railways, as well as several private companies, have promised to return unsold objects free. The Farmers' Club of Berlin have also established a prize of 100 marks (£5). Every means will be employed to arrange the Exhibition in the most effective manner. Programmes may be obtained from the office of the General Secretary, Invalidenstrasse 42, Berlin, N. Germany. Entries close on the 1st of March.

— A FEW MORE WORDS FROM AMERICA.—Thanks for your insertion of a few words respecting the doings of our old horticultural friend, Mr. Laurence in his American home. In a further letter just received, in which he encloses Primula blooms, he says:—"You will see (a copy of the *American Florist* is referred to) that Roses and Carnations head the list for cut flowers, and the quantities grown are to a Britisher enormous, and the way Roses are mailed (*i.e.*, posted) is something also to wonder at. My friend Reid of Chambersburg has house after house, each containing 18,000 to 20,000 in $2\frac{1}{2}$ -inch pots, struck in summer, and retailing at 1 dol. per dozen; very few H.P.'s. Winter has not yet come, and Christmas Day was like a fine Easter Sunday in England, and the grass is still green. It is stated by old sailors that the Gulf Stream is several hundred miles nearer the Atlantic coast. If really so, that may account for the phenomenal weather we have had the past two years, but we do not like it. It is too English-like for us."—W. D.

— THE LATE MR. JOHN HENDERSON.—In your last issue you gave a notice of the death of this eminent horticulturist, as remarked in the *American Florist*. Mr. John Henderson was a son of the late Mr. E. G. Henderson, of the Wellington Road Nurseries, and was, previous to his going to America, a partner with his brother, Mr. Arthur Henderson, and his uncle, Mr. John A. Henderson, in the Pine Apple Place Nurseries, the firm being that of J. A. Henderson & Co. At that time the Pine Apple Nurseries, Maida Vale, had a world-wide reputation, and one of your earliest contributors on the establishment of the Journal, the late Mr. Thomas Appleby, was for years the Orchid grower, and an

esteemed colleague of mine. I well remember the dissolution of partnership by the retirement of Mr. John Henderson, as it fell to my lot to assist materially in making up the partnership accounts. The late Mr. John A. Henderson was a warm supporter of the Gardeners' Royal Benevolent Institution from its formation to the time of his death. Mr. Andrew Henderson, another brother of Mr. John, and Mr. Arthur Henderson, were in partnership with their father, Mr. E. G. Henderson, at the Wellington Road Nurseries for years, and he is now connected with the old Pine Apple Place Nurseries, and I believe his brother, Mr. Arthur Henderson, is still living.—W. D.

— SPRAYING FRUIT TREES WITH ARSENITES.—At the meeting of the American Association for the Advancement of Science, held at Toronto, this subject was taken up by Professor A. J. Cook. He said: Again, as our wild fruits are more cleared away we only need to spray our Apples once to destroy the codling moth, and can treat the Plum trees three or four times with Paris green or carbolated lime in case we have only occasional showers. For the Apples we can use London purple, 1 lb. to 200 gallons of water. For the Plums against the curculio we must use Paris green, 1 lb. to 200 or 300 gallons of water. Respecting the injury done the foliage by the use of arsenites, he said: London purple is more injurious to the foliage than is Paris green, and white arsenic—arsenious acid—is more harmful than is either London purple or Paris green. This is doubtless owing to the soluble arsenic which is quite abundant in London purple, and almost absent in Paris green. London purple may be used on Apple, Plum, Cherry, Pear, and most ornamental trees, but on these should never be stronger than 1 lb. to 200 gallons of water. If the application is to be repeated, as it must be for the curculio, to prove effective, or if it is to be used in June or July, Paris green should be used in the same proportion as above, or else we should only use 1 lb. of London purple to 300 gallons of water. I now think that this necessity is more due to time of application than to the fact of increased quantity of the poison. If the arsenites are to be used on the Peach to defend against the curculio Paris green only should be used, and that not stronger than 1 lb. to 300 gallons of water. The injury done to the foliage is never immediately apparent. It usually shows somewhat the second day, but the full injury is frequently not manifest till the fifth day, and often not till the tenth. He likewise demonstrated that there is no danger of cattle being poisoned by eating the grass under the sprayed trees. Professor Clarence M. Weed of Columbus, O., read a paper on a similar subject—remedies for the Plum curculio. An experiment with Cherries was made, spraying half an orchard with London purple, 1 lbs. to 160 gallons of water. He then picked Cherries from sprayed trees and unsprayed trees, and in every case there were more wormy Cherries on the unsprayed than on the sprayed trees. The average was—unsprayed trees, eight per cent. of wormy Cherries; sprayed trees, three per cent. of wormy Cherries. The benefit from the spraying hence was 75-6-10 per cent. Experiments were also made with Plums when an orchard of Plums was sprayed with London purple several times. An enormous crop was the consequence, although two untreated trees had their entire yield destroyed. He concluded that very much of the damage done by the curculio could be safely and cheaply prevented by the use of arsenites. Professor Saunders of Ottawa expressed his opinion that Paris green was a better arsenite to use than London purple.

DESTROYING THE EUCHARIS MITE.

I HAVE observed of late that several of your correspondents have claimed credit for good cultivation of the Eucharis. I have no wish to speak lightly of the merits of any successful cultivator, especially if he or she be an amateur or a beginner; but given conditions which are at all favourable I should hardly consider the Eucharis the most difficult plant in the world to grow. Indeed, when we remember how it is baked in one place, stewed in another, and poisoned in a third, according to the whims of the different cultivators, and that it not only survives, but does fairly well in each case, one would be inclined to consider it a remarkably easy plant to cultivate. In practice many others beside myself have found it so. But having succeeded ourselves shall we call our brother gardeners unskilful who have failed to do the same? Because we have never been troubled with insects at the roots of our plants shall we say there is no such thing as Eucharis mite? I might just as well say there is no such thing as influenza because I do not happen to have that disease myself.

I have grown Eucharises under favourable conditions and succeeded. I have attempted to grow them under other conditions and have miser-

ably failed. The favourable conditions need not be related, so I will confine my remarks mostly to the other side of the question.

Some plants were bought at a public sale three or four years ago. They did not look in particularly robust health, but I have seen many look worse, and they quickly responded to a little liberal treatment. They were shaken out, divided, potted, and they started growing fairly well. After a while the leaves became flabby and some of them decayed. On looking at the roots some of these were found to be decayed too. In a short time they started well again, but the same unhealthy symptoms came on before the growth was completed, and this state of things went on for two years. The plants were attended to in watering, &c., and received much the same treatment as was given to other plants which succeeded admirably in former years, but which had now passed out of my hands.

Last spring it was decided to kill or cure them. On turning out the bulbs and washing them they were found to be very much infested with small white insects and what looked like eggs. The bulbs were decayed in places, and the insects and eggs were in them to a considerable depth. They were then subjected to the following process: Two or three layers were peeled off each bulb, and any holes remaining were then pared round with a pointed knife.

A mixture was then made as follows:—Half a pint of Fir tree oil and a quarter of a pint of petroleum were shaken together in a bottle and then mixed with a gallon of rather hot soft water.

The manner of mixing is a little important, because if it is properly done the ingredients remain mixed, and may be used for other purposes besides our present subject. Measure out a gallon of the hot water, and after thoroughly shaking the Fir tree oil and petroleum together in the bottle do not allow sufficient time for them to separate again, but pour a little of the water into a third vessel, and then, with the bottle in the left hand and the vessel containing the water in the right, pour them both into the third vessel together, when the water will become milky and sufficiently thick to prevent the petroleum again separating.

The bulbs were placed in this mixture for twenty minutes and then in a tub of clear water for a similar length of time. They were then potted, placing three bulbs, or at least what remained of them, into a 6-inch pot. I have the pleasure to say that they not only lived, but commenced growing almost immediately, and are now nice healthy plants, nearly 2 feet through and filling 10-inch pots.

Now I think I have said something to prove first that there is an insect which attacks the roots of the Eucharis; secondly, that it is useless attempting to grow the plant without first getting rid of the enemy; thirdly, that it may be got rid of with comparatively little trouble, though I do not think a careless or slovenly person will ever get rid of it. Of course there are several details which will suggest themselves to the thoughtful reader, but perhaps I had better mention some of them for the benefit of those who are not thoughtful. I took my plants into the open air on to a vegetable quarter to shake them out, the old pots were washed and left outside, the place where the plants had been standing was watered with petroleum, and the plants when newly potted were placed at the other end of the house.

I have been induced to write a line on this subject because I happen to know that some excellent gardeners have been blamed for failing to grow the Eucharis well, and the idea of the Eucharis mite being the cause has been ridiculed, because some writers had said there was no Eucharis mite, or if there was it was only the result of bad cultivation.—WM. TAYLOR.

FORCING RHUBARB AND SEAKALE IN LEAF HEAPS.

As there has been some correspondence lately on the above subject, I will state the system practised here in the hope that it may be of service to others who are in a position to secure a good heap of leaves. This season I cut Rhubarb on New Year's Day, and Seakale the day after Christmas, from roots placed in at the end of November. In 1888 Rhubarb was put in on November 23rd, and the first dish cut on December 24th. I do not know whether that would be considered quick or not, but it is as early as it is wanted here. As the leaves are gathered in the autumn they are wheeled into a sheltered corner outside the garden and made into a square heap in which boxes are sunk. The top of the box is about a foot below the surface, and the boxes about 3½ feet deep without bottoms. Boxes 2½ feet deep will do for Seakale. About 6 inches of ordinary garden soil is used, and the crowns are packed in as closely as possible. Seakale roots have 3 inches of space between them. No water is needed if the soil is at all moist. Boards are placed on the boxes and covered with a few inches depth of leaves. A small hole is left, and the boxes examined every other day, and the hole made larger or smaller for regulating the heat. I find this is always strong in the early part of the winter. Once I remember by neglecting to leave any opening, and not opening the boxes for a week, the roots

were found to be in pulp. With that exception I have never had any difficulty in having Rhubarb or Seakale as early as wanted.—A. THOBURN.



NEW ROSES.

NOTWITHSTANDING the immense number of new Roses which have been sent out during the last twenty years, there is little sign of abatement in the number that our French friends are so kind as to send us. Perhaps they think as the President of the Chamber of Deputies appeared to do, although I rather think he must have put his tongue in his cheek when he said it—I mean when he alluded to the generous hospitality France had shown to the strangers who visited Paris at the time of the Exhibition, appearing to think that by making the charges at hotels, restaurants, &c., double what they usually are, they are conferring a favour, so it would almost seem as if the French Rose growers thought that the more Roses they could foist upon a credulous public the more kindness they show us; and although I fancy that those who are willing to have the *experimentum in vili corpore* made on them must be very sensibly diminished, for burnt children dread the fire, still it must to a certain extent be a want which this flood is designed to meet, and no doubt there is to a certain extent that remnant of curiosity and eagerness for novelty which are the cause that produces the effect. When we look at our Hybrid Perpetuals and Teas and see such *loves* as Marie Baumann, A. K. Williams, Charles Lefevre, &c., it may be well asked, Can there be anything we want? Yes, we want a white one of the form and substance of the latter named flower, and a yellow Marie Baumann or A. K. Williams, not such a thing as Gloire Lyonnaise. I can hardly yet forgive Guillot for palming this off on us as a yellow Hybrid Perpetual. He has done such good work in giving us the splendid Teas which have come from his establishment, that it was a pity he should damage the trust we had in him by sending us this; if he had sent it as a Hybrid Tea and not called it yellow, we should not have found fault with him. Not yet has it proved to be beginning of a new race any more than La France, from which so much was expected; but oftentimes the hopes of hybridisers are frustrated.

TEAS.

In taking these first, I do so because this class is unquestionably highest in favour at the present time. Nor is this to be wondered at: their lovely colour, their delightful fragrance, and lasting qualities clearly give them a claim on all lovers of flowers. There are two names which are especially conspicuous in this class—Guillot and Nabonnand, and it is a proof to old fellows like myself how time goes on. I recollect when we used to call the present head of the firm "young Guillot," and now the young one has become "old Guillot," and there is a young one to take his place. One has written slightly of Nabonnand, and as a raiser of Teas for exhibition he has not done much for us, but he has gained our favour by that exquisite buttonhole which he gave us last year in L'Idéal, and we may have some prospect. Of the twenty varieties four are sent out by

NABONNAND ET FILS.

Adeline Outrey.—Very vigorous and free flowering; flowers medium size, full, clear yellow, tinted with rose, centre chamois.

Madame Marguerite de Saras.—This is apparently one of the Dijon race, and the description of its colouring might very well be used for old "Gloire." It is said, however, to be of perfect shape, which certainly that Rose is not, but we have had so many of this race with high sounding pretensions, that we may well hesitate at any fresh claimant.

Marguerite de Thezillat.—This would seem to be one of the red Teas, for the colour is said to be that of the red H.P.'s, and the form imbricated, while the centre is said to be yellow.

Madame Marie Usher.—This is another of the Dijon family, but different in colour, which is said to be carmine.

BERNAIX.

Georges Farber.—Flowers very large, supported by a long firm foot-stalk; colour velvety purple, veined with dark red; centre cochineal red, passing into cerise carmine, colouring very variable.

Madame Marthe du Bourg.—Flowers large, full, outside petals large and of great substance; colour white, washed with violet carmine red, passing into chrome yellow washed with garnet red.

Madame Phillippe Kuentz.—Flowers erect, large, full; colour rose cerise, passing into salmon flesh colour.

Madeline d'Aoust.—It is very difficult to imagine what this Rose is like, unless it be something of an enlarged W. A. Richardson. Form elegant, two-coloured, rosy flesh in the upper portion of the petals, centre nankin, reminding us of the tints of Souvenir de la Malmaison and W. Allen Richardson.

GUILLOT ET FILS.

J. B. Varonne.—Flowers, large, well formed; colour ranging from china rose to bright carmine, with coppery yellow centre.

Souvenir de François Gaulain.—Vigorous. Flowers large and well formed; colour varying from magenta red shaded with violet to dark violet shaded with carmine.

SCIPION COCHET.

Maman Cochet.—One of the largest flowers in growth. Flowers with very short footstalk, outside petals very large, those in the centre in the form of a rosette; colour rosy flesh washed with carmine, shaded with nankin yellow. This magnificent variety, which is figured correctly in the "Journal des Roses," will not be sent out until the autumn of 1890, and is dedicated by M. Cochet to his venerable and very worthy *mère*, aged eighty-five years. I think that this advertisement oversteps even the most effusive of our home productions in that line.

SOUPERT ET NOTTING.

Duchesse Marie Salviati.—Flowers large, full, well formed; colour orange chrome yellow, shaded with tender carmine rose, centre rosy peach.

Gustave Nadand.—Flowers cupped shape; colour clear vermilion, shaded with carmine lake.

TÉSNIER.

Gloire des Cînorés.—Flowers very large, full, cup shaped; colour coppery yellow, reflex of petals wine red, with gold yellow centre, constituting new shade of colour.

Madame Adolphe de Tarlé.—Flowers large, with large petals, cup shape; colour pure satiny white, with canary coloured centre.

BONNAIRE.

Jeanne Guillaumex.—Flowers large and well formed; colour blush red, largely shaded with salmon, centre metallic red on straw yellow ground.

Souvenir d'Auguste Legros.—Large and well formed; colour fiery red mixed with shaded crimson; buds very long, and of large size.

MOREAU-ROBERT.

Madame Moreau.—Flowers large and well shaped, colour clear coppery yellow, shaded at the centre with deeper tint; reverse of petals rose and apricot yellow.

LEVEQUE ET FILS.

Madame Olga.—Very vigorous. Flowers large and well formed, holding themselves erect; colour white, very delicately and finely shaded with yellow in the centre.

KETTEN FRÈRES.

Miss Marston.—A Rose raised by Pries, but sent out by this firm. Apparently not a very strong grower *Assez vigoureux*, pure white, bordered with deep rose, centre yellow lighted with peach.

CHARRETON.

Marquise de Folton.—Vigorous. Flowers cupped shaped; colour saffron yellow, centre carmine rose.

The list presents several noticeable features; thus several of those who have supplied us with new Teas are absent, while such names as Tesnier, Charreton, and Ketten are new to us, while of the better known growers we have comparatively few. Nabonnand is very modest in his list, on which, however, as far as pretty Roses go, we are inclined to look with more favour since he has given us *L'Idéale*. Another feature is the large number of red and high coloured Teas, there being nine out of the twenty-one of this character, and I think this is much to be deplored. Already, as I believe, we have too many of these, and the whole beauty of the class will be destroyed if we get a quantity of these glaring colours, which may well be left to the Hybrid Perpetuals. Another point is that there are a number of cupped flowers. I do not for a moment deny that there are some beautiful flowers of this shape amongst the Teas already, but they are not in my opinion equal in beauty to the long pointed bud of others. *Souvenir d'un Ami* is a lovely Rose, but I do not think that it can be compared with a good *Anna Olivier* or *Comtesse de Nadaillac*.

For these reasons, then, I do not look very hopefully to the new Tea Roses to add much to our enjoyment; of course, it may turn out otherwise. There may be a "dark horse" amongst them; but judging from our experience of the past, and the description given to us of those for the present year, I had rather not "give odds" on any of them.—D., Deal.

P.S.—I find, either by printer's error or slip of the pen, that in the "Rosarians' Year Book" I have credited Mr. F. Cant with the fine bloom of Miss Ethel Brownlow instead of Mr. Ben. Cant.—D., Deal.

DRESSING ROSES.

I MUST ask permission for the insertion of a few lines on one point only on Mr. Pemberton's letter. I think he quite misunderstands my contention as to his action as a member of Committee. When a matter has been discussed on the Committee of any Society, and that Committee has passed a resolution to be submitted to the general body of its members as their recommendation, no member of it, whether present at its decision or not, is, I believe, at liberty to speak or write against it. It is as if a matter were discussed by the Cabinet (to compare small things with great) and a measure had been agreed upon, and when it was brought forward some member were to rise in his place and oppose it.

That has occurred, as in the case of the Duke of Wellington and Huskisson, but the latter got very short shrift. Of course, if not a member of Committee he might do what he liked.—D., Deal.

CULTIVATION OF HARDY FRUITS.

THE cultivation of hardy fruits in this country is a subject of great importance to the landowner, cultivator, and consumer, and deserves the serious consideration it is receiving in the gardening and other papers at the present time. No one can deny the fact that the demand for good fruit is yearly increasing all over the country, and that enormous quantities of Apples are imported from America, Australia, and the Continent to supply our markets, which, I think, might be successfully and profitably grown at home if a better system of culture and selection of varieties were adopted. Some writers aver that our climate is too moist and too cloudy to grow really fine Apples, a statement which few will admit who have had anything to do with Apple culture in the south and western counties of England. As regards quality I have no hesitation in saying that our best home-grown Apples are superior to any of the imported varieties I have met with, and I have tasted a great many of the American and Australian grown Apples, which are dry and juiceless compared with the brisk rich aroma of our crisp succulent home-grown fruit.

As to climate there are favourable situations all over the country from north to south, where Apples may be profitably grown in good seasons by selecting the best soil and situations and procuring proper varieties to suit the climate. But, as a matter of fact, the Apples grown in the north cannot compete in quality with those grown in the south. It is different, however, with small fruits which can be grown as successfully in the north as in the south. Gooseberries grown in the north are superior in quality to those cultivated in the south, and Strawberries, Red, White, and Black Currants, and Raspberries are as good in the north as they are in the south. The climate and a great quantity of the land in South Wales is well adapted for growing fruit of the best quality but neither the soil nor the situation have been taken advantage of, and there are few orchards of any kind in Glamorgan or the neighbouring counties, and what are have been sadly neglected. The trees appear to have been planted indiscriminately and allowed to grow as they pleased and nothing more done to them ever afterwards, and the results are poor crops of miserable fruit not fit for market.

The treatment is different in gentlemen's gardens, where none but the best varieties are grown. Here the trees have been properly planted, manured, pruned, and trained in pyramidal form, and kept in a clean, healthy state by adopting a regular system of washing and syringing them with an insecticide in winter. The trees here, and elsewhere in this district, which are treated in this way, produce heavy crops of fine fruit in ordinary seasons, which compare favourably on the exhibition table with those grown in the best fruit districts in England. It is a wonder that market gardeners, and others, have not gone more into fruit culture in this district in the past, where it would be sure to succeed, and where there is always a ready market for it in the large towns, and teeming populations in the mining valleys. Pyramidal trained trees are the most suitable for market gardeners. They are easier managed in the way of pruning and gathering the fruit; besides, the fruit is not so liable to be blown off in storms as they are on high standard trees. If the trees were planted in rows 20 feet apart, and 12 feet in the row, with the best market sorts, and sure bearers, such as Apples Keswick Codlin, Lord Grosvenor, Lord Suffield, Ecklinville Seedling, New Hawthornden, Stirling Castle, Alfriston, Potts' Seedling, Lane's Prince Albert, Nelson's Glory, Wellington, Worcester Pearmain, Rymer, Beauty of Kent, Beauty of Hants, Annie Elizabeth, Waltham Abbey Seedling, Cox's Pomona, Cox's Orange Pippin, and few other really fine varieties might be planted which are shyer in fruiting than those named.

Of Pears—Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré d'Amanlis, Beurré Diel, Marie Louise, Pitmaston Duchess, Glou Morceau, Durondeau, and others. Plums—Victoria, Kirke's, Pond's Seedling, Transparent Gage, Bryanstone Gage, Prince Engelbert, Jefferson, and Orleans. The space between the trees could be planted with Gooseberries, Raspberries, Strawberries, Currants, and vegetables, until they have grown sufficient to occupy the whole space. If the trees are properly attended to in pruning, manuring, and kept clean and healthy, they will become fruitful in five or six years after planting, and by the time they are ten years old they will produce excellent crop of fine marketable fruit.

Pyramidal trained trees cannot be grown satisfactorily in orchards where horse and cattle are allowed to graze, as it would be impossible

to protect them thoroughly from these. But if trees were planted with a clean stem of say not more than 4 feet it would be a great improvement on the old system of planting them with a stem 6 and 7 feet high before branching. The shorter stems could be easily protected from sheep by barbed wire guards, and horse and cattle should never be allowed to enter the orchard. If this method was adopted, and the trees planted 21 feet apart, they could be kept lower, and more under

"Profitable Fruit Growing"—will have a wonderful effect in the production of fruit in future by teaching all interested how to grow and market it in the best condition possible. To say the least, I consider the essay a masterpiece of its kind—a real acquisition, which cannot fail to do an immense amount of good, and raise the status of fruit culture in this country to a pitch it has never attained before.—
A. PETTIGREW, *Castle Gardens, Cardiff.*



FIG. 15.—REV. W. WILKS, M.A.

the control of the cultivator. Besides the great advantage it would be in gathering the fruit, which would not be so liable to be injured by high winds.

A particular friend, and, I might say, one of the best gardeners in the country, in writing to me some time ago on the cultivation of hardy fruits, said that a certain distinguished statesman in his speeches had done more to raise the status of hardy fruit culture in this country than all other things put together during the century. Well, taking that for granted, I venture to say that Mr. Wright's prize essay—

REV. W. WILKS, M.A.

WE have pleasure in having been able to secure a portrait of the above gentleman for engraving in the *Journal of Horticulture*. We desired to do this because Mr. Wilks has not only been an ardent horticulturist for many years, and has practised the ancient art of gardening in its most modern aspects at Shirley, but more particularly because of the position he occupies as Secretary of the Royal Horticultural Society. This is a very honourable office to fill, but is no sinecure to a gentleman

who is earnest in discharging the duties pertaining to it. Working assiduously and gratuitously in the interests of the Society, Mr. Wilks has won the confidence of the Fellows, and to his clear judgment and active endeavour a large share of its increasing prosperity is due. Elected on the Council and appointed Secretary at a critical time, he has proved himself a "man for an emergency." Broad minded, free from the suspicion of pedantry, a good listener, great worker, and forcible speaker, he has done yeoman service to the Society, which is growing in influence and usefulness under his guiding hand. Mr. Wilks wisely recognises the work of special societies, not regarding them as opponents of the Royal Horticultural Society, but helpers in the advancement of national horticulture, of which it is the accredited head, and no one is more warmly welcomed at the festival gatherings of those societies than he is. We can say on their behalf, and on behalf of the Fellows of the Royal Horticultural Society, in the words of a famous statesman as applied to one who honestly tried to do his duty to his country, "We are all proud of him."

CULTURE OF THE MUSCAT GRAPE.

So much has been written of late years on the cultivation of the Grape in general by so many successful cultivators, that at the present time it is difficult to bring forward anything new on the subject; but the principal object of my paper is to bring into notice a class of Grapes which of late years have very much gone out of cultivation, or (as the more popular saying is) out of fashion. Grapes, I suppose, are subject to changes; and these are not at all times made without some sacrifice, and old favourites are often brought forward again to begin life anew. In the rage for changes many good Grapes are well nigh forgotten, and probably by many have never been seen. The most popular varieties of the present day are brought to a high state of perfection, owing, no doubt, to improved facilities in the form of houses better adapted for their successful cultivation, and the improvements in obtaining artificial heat, also to advanced knowledge of the constituents of the soils and manures, which play an important part in their successful cultivation.

We have not had many recent additions to the list of Muscat-flavoured Grapes, and it is questionable if some of our later additions will bear comparison with our old favourites when flavour is the primary consideration. We have advanced slightly in size of berry, and doubtless some of the old varieties might be improved in that respect if brought under the high cultivation of the present day. Our old and almost neglected varieties, such as the Grizzly, Black and White Frontignans, Chasselas Musqué, and Muscat Hamburgh are of the finest flavour, and not surpassed by any save that still valued variety Muscat of Alexandria. The Frontignans appear to have passed out of date owing to the smallness of their berries, and I am afraid the Grizzly Frontignan would not find favour generally in the present day owing to its peculiar colour, but it can be grown to produce fair size berries. A friend once in walking through a vinery where this variety was grown remarked, "What a bad colour your Lady Downe's Grape is!" "Yes," I replied, "but the flavour is good," and after he had tasted it exclaimed, "I never tasted Lady Downe's Grape with such a flavour." "I suppose not," was my reply, "but that Grape is the Grizzly Frontignan." He was still more surprised to see it with such large berries, as he had mistaken it for Lady Downe's badly coloured. I believe the Frontignans might be very much improved in size of bunch and berry by high cultivation; they would then, I feel convinced, surpass some of our later introductions.

Chasselas Musqué is another variety which is rarely seen now, but which has a fine Muscat flavour, but is liable to crack its berries if not carefully cultivated. It can be had earlier than the Muscat of Alexandria, and is considered to be equally as good in flavour, and is valuable for early use where Muscat flavoured Grapes are required.

Muscat Hamburgh is also a fine Grape, and not cultivated to the extent that its fine qualities deserve. Some complaints have been made as to its having a delicate constitution, but I consider that is more imaginary than real, and when well grown it is good both in bunch and berry, and not to be surpassed by any black Grape for quality or appearance.

Among the more recent introductions Mrs. Pince and Madresfield Court Black Muscats claim a fair share of attention, although the former is not so often seen in the best condition as is the Madresfield Court; and it is only of late years that this variety appears to have come to the front, for I believe it was originally considered to be a late Grape,

but since it has become better understood its successful cultivation has been attained, and it makes a valuable addition to the list of black Grapes. Mrs. Pince's Black Muscat deserves to be well cultivated, for it is a fine flavoured Grape, and few would care to return to such varieties as Gros Colman after eating it. It forms a good companion to that justly esteemed variety Muscat of Alexandria, and I think it would be difficult to name a better black and white Grape for late use when quality is taken into consideration.—W. SIMPSON. (*Read at a meeting of the Liverpool Horticultural Association.*)

(To be continued.)

LUPINUS ARBOREUS.

OUR gardens are largely indebted to the Lupines for many ornamental flowers. Besides the annual species several of the perennials are also useful. The species under notice, *L. arboreus*, the Tree Lupine, will yield to none of these in decorative qualities. The specific name is, however, somewhat a misnomer, as, if left to its own devices, the plant will assume more the form of a decumbent shrub than of a tree. If properly staked and tied it will, however, make a fine object in the shrubbery border, or at the back of a border next a hedge or a wall. Grown as a wall plant it is very attractive, but should have a warm and sheltered position in every locality. I have grown the Tree Lupines for a few years, and am a great admirer of their beauty; but have been somewhat puzzled by the uncertainty of their duration of life. Thus, out of some seedlings raised about five years ago, four plants were kept, being all for which space could be afforded. Of these one died in its second year, one in its third, and another this year, the fourth still survives and is flourishing. Nor can the time of their death account for it. One died in late autumn, one in early spring, and the last in September. In the case of the last I am disposed to attribute the cause to its bearing a very heavy crop of seed, and to the plant being unable to recover from the exhaustion consequent on the process. I should be glad if any of the readers of the Journal could enlighten me on the subject, as it is when these Lupines are of a large size that they are most decorative and most useful from a garden point of view. In all probability the safe plan will be to consider them as biennials, sowing the seeds singly in pots, and planting out the seedlings without disturbing the roots, although I find they transplant fairly well when young.

L. arboreus was introduced about 1795, and is, I am led to believe, a native of North America, but my information as to this is not very precise. The original colours appear to have been lilac and yellow, but several intermediate shades may be obtained from a packet of mixed seeds. I have had pale creamy-white, pale lilac-white, pale, but bright, yellow, and the last plant whose loss I had to mourn was a bright lilac. This was grown in the back of a border next a high hedge, was carefully tied up, and when in flower attracted much attention, the handsome spikes of bright lilac flowers showing well on the fine pinnate foliage. If we may be pardoned a somewhat far-fetched simile it was like a Christmas tree laden with ornaments, but all of Nature's handiwork.

L. arboreus prefers a light but rich soil, but must have sunny sheltered position protected from the north. Should these requisites be afforded it, and a succession of seedlings kept to renew the stock, the grower will have no reason to regret making its acquaintance. We have very many beautiful plants among the hardy leguminosæ, and although I dare not say it is the most beautiful it will, at all events, hold its own among them. Time after time I have seated myself in a snug corner in his garden, a short distance from the Tree Lupines, and viewed them with admiration, an admiration perhaps not lessened by the knowledge that possibly by another season their glory would be departed, but that its memory would abide.—S. ARNOTT, *N.B.*

EDITORS AIRING THEMSELVES.

EDITORS of gardening journals, like other mortals, no doubt enjoy a change now and then, and if they cannot wholly leave their old habits behind them, they can at least wander into new fields, indulge in a literary romp, and have, what is good for all men in city pent, an airing. Wonderful men are editors, as a body. They "we" this and "we" that, or somebody "we's" for them, the authorship being shrouded in obscurity; but when those of a special class step beyond the confines of their own domain, and launch on the broad sea of general literature, to teach an ignorant world matters on which they assume to be wise, it is curious to notice they contrive to let the wide world know either who they are, what they are, or where they come from. This is presumably to give weight to their utterances, and as their object it must be assumed is the public good, not private distinction, they are permitted to have their airing. Let us hope they benefit by it, and benefit others by their words of wisdom scattered so freely around.

I have been led to allude to the interesting subject of editorial peregrinations by some copies of the *Times* which my master has been good enough to lend me, with the suggestion that I might, perhaps, write a little about them in the Journal, of which he is a reader, and to which he knows I send one or two communications a year. "Perhaps they will not insert what I send," I ventured to remark. "Oh yes they will," was the reply, "if you mind how

you put it." As that amounted to the expression of a wish, I felt bound to comply, and if I am lucky enough to "put it" in an acceptable manner, I shall certainly lose nothing, but may possibly gain a compliment, and that is something to a man who values his situation and has pleasure in trying to oblige those to whom he is under obligations.

The subject that has been exercising the minds of men—and editors—in the *Times* is fruit culture. A sort of triangular duel seems to have been going on, all the combatants appearing to be on very good terms with themselves, and—well, I will say "gentlemanly" towards each other. They may have dined together since, just as we are told barristers do who seem to fight each other so fiercely over cases in court. Be that as it may, they have had their little differences in public and—their airing.

I am not sure that I have been instructed in reading the letters in question, but I have been amused. There are six of them. There may be others I have not seen, but six suffice for me, two from each of three editors, for I take no account of a dozen others from persons who are not editors, therefore must be placed in the category of the commonplace multitude to which so many of us belong.

So far as I can make out, Editor No. 1 first stepped on the stage and said his little piece and retired. Next, Editor No. 2 came on and said his, which was different, of course, made his bow, and vanished. Then Editor No. 3 emerged from behind the scenes for a share in the public applause.

We have no theatre in our village, but from what I have read, actors appear as types of character. There is usually, I think, a "swell" in the company, generally a "funny man," and often a "heavy man." Judging entirely from the performance, if I were asked to indicate the characters, I should be inclined to regard No. 1 as the Swell, No. 2 as the Funny Man, and No. 3 as the Heavy Man of this piece in six acts.

Act 1. No. 1 enters. This gentleman says another gentleman "blames people for not buying an Apple of very poor quality," and goes on to say the public are not such fools as they are supposed to be, and they rightly refuse to grow English grown Gravensteins, and adduces as a model Apple the American Newtown Pippin, which cannot be grown here. He condemns King of the Pippins, and concludes by recommending the "Ribstone," and especially the Blenheim, for planting freely for market purposes. (Exit). No. 2 enters and says No. 1 puts his case "obliquely;" a claim then follows for Gravenstein and Newtown Pippin for amateurs, but though he thinks the American is often the better of the two, forthwith dismisses both as "curiosities." He praises King of the Pippins, and adduces supporting testimony, having also a good word for Cox's Orange Pippin, Stirling Castle, Golden Noble, Fearn's Pippin, Boston Russet, Lane's Prince Albert, and Dumelow's Seedling; but the pet of No. 1, the Blenheim, he says has been much overrated as a fruit for profit, and only after long waiting in a "place that suits it," it may prove a "pearl of great price." (Exit).

Enter No. 3. He says the true German Gravenstein ripens in this country, and the fruits are delicious, but many that are sold as Gravensteins are not Gravensteins; that the variety known as King of the Pippins, and generally grown under that name, is one of the most certain and profitable of table Apples, but is not the true King. The Blenheim he pronounces handsome, but too slow for people who want quick returns, therefore it was excluded from a list in a certain book, and he agrees generally with the sorts favourably mentioned by the previous performer. (Exit).

Act 2. Re-enter No. 1. No. 2, he says, "misleads in various ways," then gives an example of his research in analysing somebody's book for showing that King of the Pippins is not of fine flavour, and "Rae's" testimony to that effect was too old; that if the "Ribstone" did canker he was trying to cure it by grafting on dwarfing stocks; that a child who eats Apples would reject some of No. 2's, and that the Blenheim is worth any ten of them. (Exit).

Re-enter No. 2. He says he prefers the public judgment to individual tastes and fancies, yet would rather trust No. 1's taste in selecting fruit than framing arguments; that the Apple known as King of the Pippins sells better than any other of its season, and pays the grower; that it is quite sufficient for him that No. 1 admits the defects of the Ribston and Blenheim, the first by cankering, the second by slow bearing, and "for a man of moderate means to plant the latter on another man's land would be to pledge himself to ruin." Experiments are not facts. The "argument from the taste of the child is childish," and that experienced men who are planting for profit will trust their own judgment before that of all the children in the world. (Exit).

Re-enter No. 3. He thinks discussing the flavour of Apples about as useful as discussing the beauty of colours. He thinks there is a muddle over the "Kings," and suggests the King of

Rea (not Rae) has not been grown, if seen, by the other actors, and that the variety sold as the King is not the King but Golden Winter Pearmain. Apples for quick bearing and cottagers should not be the same as for gentlemen's gardens, as poor men cannot afford to wait long for crops, but rich men can. The Ribston (not Ribstone) and the Blenheim he would not advise the former to plant, but gentlemen might plant them. Fine young trees of the Blenheim, about fifteen years old, at Chiswick, he says have not averaged a shilling's worth of fruit a year each, and Cox's Orange Pippin he pronounces the best dessert Apple in cultivation, but it does not bear so well in bad fruit years as does the Golden Winter Pearmain, which is sold as King of the Pippins. (Curtain).

Now, what can we plain people, who are unskilled in polemics, make of all that? What can the mixed readers of a general newspaper make of it? It seems to me to be a case of doctors differing, and may I add of doctors advertising? We are taught to believe that general editors are ultra cute men, but I am inclined to think some garden editors are cuter. If one can do the la-de-da, another take a burlesque, and a third a heavy part, and so get on the stage, we as amused onlookers must "clap" them all. I cannot for the life of me regard the business as otherwise than serio-comic. It seems comical enough to suggest that the Gravenstein Apple cannot be ripened in this country. Two hundred miles from London they ripen deliciously, but it is a gentleman's Apple. Equally funny is it to fancy the Newtown Pippin is worth growing in British gardens. In such it must be regarded as a curiosity. Rich, too, it must be to old hands who have tried the Ribston on different stocks for a good deal more than a generation to be told that it is to be cured of canker because a beginner is going in the same old track and thinks it new. I am not learned enough in the genealogy of pomology to give an opinion on the claims to kingship of two rivals, but I think I may venture to say that when a person advocates the planting of the Blenheim Pippin Apple for profit, he, at the same time, in my opinion, tells us as plainly as he can in a negative way that he has not planted any great number of trees and waited for their bearing. In these days of small profits and quick returns, the Blenheim with its good looks and fairly good quality, must steadily, but surely, decline in favour amongst planters of Apples for profit. Only men under thirty years of age can plant trees of it freely in confidence of realising a good return, while persons who plant after fifty may confer a benefit on the next generation, as it is only by chance that they will materially benefit themselves. As I have neither trees, books, nor papers to sell, nor anything to gain by posing as an authority, I must be content to remain in obscurity as—A YORKSHIRE-BITE.

THE SUNNY HILL VINERIES.

A RUN through the Sunny Hill Vineries, Littleover, Derby, is most interesting, showing what Mr. W. Innes has already achieved. His first three vineries date six years back—viz., three-span house: 100 feet by 24. Two are planted with Gros Colman, the other with Alicante. This produced 23 cwt. of Grapes last year, about 1½ cwt. less this year. One house of Gros Colman was nearly emptied. On tasting these Grapes, the greatest connoisseur could do no other than pronounce them deliciously refreshing. The other, still intact, was a sight never to be forgotten, containing eighty-two Vines, carrying twenty bunches to a Vine, averaging quite 2 lbs. a bunch. With all shoulders taken off the uniformity throughout was remarkable, there seemed scarcely a foot between the bunches. We could not help asking for a wrinkle, which Mr. Innes soon imparted. The borders were made entirely of turf cut from the land the houses stood on, to which a fertiliser was added. Last year the late Grapes were cut on the 15th March. All fruit hangs till marketed. Two lean-to's were erected and planted in the Jubilee year. The Vines were planted on the 10th August, and in seven weeks reached the top of the house. They have carried two crops, and produced 600 lbs. of Grapes the second year from permanent Muscats and temporary Gros Colman. The house is 70 feet by 16 feet. The other house is planted similarly. Steam power raises water from a well 80 feet to a tank elevated 30 feet. There is also a soft water tank the length of the building. The houses are well heated with two Trentham Cornish boilers and abundance of piping. I must add a word of thanks to Mr. Innes for so kindly explaining the details connected with his vineyard.—G. B.

GARDENERS OUT OF SITUATIONS.

I THINK "B.," page 50, is on the right track when he makes a suggestion that gardeners ought to study their own interest more than they do by providing some remedy amongst themselves to lay the ghost of that ever present bogey, even to those who seem firmly fixed in situations—viz., the time when they are out of a situation; for, as "B." says, a hundred things may happen over which they have no control to bring about that undesirable event. The case of the gardener is much harder under those circumstances than that of the mechanic; the latter can take his kit to another shop in the same town, his loss only amounting to so many days or weeks, whereas the gardener must break up his

home and move into a cottage or apartments, as the case may be, and even when he gets suited he may have several hundreds of miles to go. All this packing and unpacking, loading, carting, and unloading of his furniture is a loss that cannot very well be estimated.

Independent altogether of finding a situation, why cannot gardeners who are in situations assist those who are out, no matter whether in the nursery or not? Surely there are always as many in places that the subscriptions would allow of, say, 10s. per week being given to those who are out. If more so much the better. Something of this sort would do good in two ways, first by staving off starvation, and secondly by making a man feel that he had friends working for him with a view to his being soon re-established. What is wanted is a central point or committee to start the thing, and I have no doubt the subscriptions will come in rapidly. I, for one, am ready when it is started.—H. B. W.



THE NATIONAL CHRYSANTHEMUM SOCIETY.

A GENERAL Committee meeting of the above Society was held in Anderson's Hotel Fleet St., on Monday, Jan. 27th. R. Ballantine, Esq., presided. The principal business was to consider the annual report and financial statement for the year 1889, and after some discussion it was resolved to recommend them to the annual meeting for adoption. The annual meeting was held at 7 P.M., E. Sanderson, Esq., in the chair, when the report and statement were formally submitted and adopted. The report reviewed the leading events of the year in connection with the Society, and referred to the preparations for the Centenary Festival of 1890, programmes and schedules of which will be issued as speedily as possible. The financial statement was very satisfactory, the receipts amounting to a total of £871 10s. 8d., the expenditure being £852 9s. 11d., leaving a balance in favour of the Society of £19 0s. 9d. It was subsequently stated that the reserve fund amounts to £100 19s. 9d., and the Centenary fund to £159 10s. The officers of last year were re-appointed, with Messrs. Crane and R. Cannell as auditors, and twelve members of the General Committee were elected in accordance with the rules. Several members having been elected and societies affiliated, the meeting terminated with a vote of thanks to the Chairman.

BIRMINGHAM GARDENERS' ASSOCIATION.

AT the fortnightly meeting, January 21st, Mr. R. Parker, Impney Gardens, Droitwich, had engaged to read a paper on the Chrysanthemum, but a severe illness prevented his attendance and the completion of his paper. What he had written was sent on to the Secretary and read, and a discussion followed in which several of the members took part, and it was a source of general regret that Mr. Parker was not present and his paper completed. Mr. Parker stated that he did not regard early propagation as absolutely necessary, some of his finest blooms being cut from plants struck in March, and this was done from old plants shaken out, planted under a south wall, and strong cuttings taken from these in March. Good turfy loam, with a sprinkling of bone-meal, and firm potting were recommended, avoiding heavily manured soil, providing copious waterings, and syringing in hot weather.

Damping and its causes were freely discussed. A general feeling prevailed that the damp mild weather had much to do with it, and that abundant bottom ventilation, with a little fire heat, was the best remedy for removing damp. Over-feeding was also regarded as another cause, and Mr. Parker evidently wishes it to be understood that he condemns such a practice. Cutting back plants and taking late cuttings with a view to obtaining smaller sized decorative plants were discussed, and Mr. Hughes, the Secretary, has adopted this plan with very great success, and stated that his plants were cut down in June, and he has had a fine display from the middle of November to the present time, but fortunately the early season favoured general success. For the future he intends cutting back all the plants the second week in May, as he does not want all the blooms at once, as he does not exhibit.—D. S. H.

VEGETABLE WHITEBAIT.

No doubt the readers of the *Journal of Horticulture* wonder what is meant by the above incongruous and somewhat "fishy" title. It is, I believe, quite new, but permissible, inasmuch as it is in accordance with precedent. Is not the "vegetable oyster" a recognised popular name as applied to a root grown in our gardens—Salsafy? And if vegetable oyster why not vegetable whitebait? But what is it—why all this preamble? Be patient—preambles are in accordance with precedent too. Was ever anything new introduced to the world without a preamble? Nothing.

Preambles are indulged in for creating a favourable impression, and so long as there is anything substantial at the end of them, are excusable. I fear, however, there is nothing very substantial at the end of this—but for the matter of that there is nothing very substantial in the real

Whitebait, yet the little mites of fishes are all the same enjoyable; so are the diminutive corkscrew-like tubers that were invested with the funny appellation at a family dinner the other day. "Oh, yes, we see what the prosy scribbler means, he is trying to say *Stachys*—*Stachys tubrifera*, but couldn't get it out without all this preamble." Exactly; the name is a bad table name, and people who hear it for the first time cannot get hold of it—cannot pronounce it, and when they do accomplish the feat there is no certainty they will not fail at the next attempt. Then they smile at the queer-looking things in the dish; sniff at them, fancy they are not good, perhaps have a suspicion they are not quite safe, and so a feeling of prejudice is raised against them. All this is true, there is not the least romance about it.

A short time ago a very good friend gave me a very good dish of tubers of this comparatively new vegetable. "Wash them well," he said, "boil them like Potatoes, then fry them in gravy or fat till a little brown, serve with melted butter or gravy according to taste, and you will find them good." And we did, but there was a little trouble over them. "Nasty lookin' furrin' things," the girl said, "they're like tight-laced maggots, an' I shall niver get 'em clean, niver." But she did, and they were cooked and served. "What do you call the funny little things?" asked the mater. "Stachys." "What? say it again—spell it." It was now the pater's turn to be bothered; however, after a little mumbling he got it right. "Oh, very well, let me taste this Stacky, just one," said a saucy minx. "It isn't stakky," snapped another, "its stachis." "No it isn't," chopped in a third, "its tubbiffera." And all kept tasting and tasting, a little at a time, till at last the mater sententiously remarked, "You can call it what you like, I shall call it Vegetable Whitebait, and I think it's very nice!" Lucky hit. "Yes," struck up the chorus, "so it is, and it *is* like whitebait, do give me a good spoonful." "And me, and me," broke in the other youngsters, as if in fear there would not be enough to go round, but there was a piled dishful, plenty for all, and a little to spare.

At night, when supper was being spread, for we dine at midday on Sundays, a musical voice was heard, "Mary, bring in the cold Whitebait, please." It was brought in, eaten up with relish, pronounced as good cold as hot, and a hope was expressed that "the good man would send some more."

The name did it. As *Stachys* it would have been toyed with, and half of it left; as *Artichoke* it would have been thought common, and perhaps good enough to use in soups, but as *Whitebait* the brownish backed tubers were thoroughly enjoyed.

It is not a vegetable for the million, the yield is not heavy enough, and the digging and picking a little tedious; but if I had a good vegetable garden I should expect my man to plant some *Stachys* tubers at the same time and much in the same way as planting Potatoes, and next winter have a good supply of "Vegetable Whitebait."—A CITY MAN.

WORKING AND NOTING RESULTS.

GARDENERS generally have commenced once more a long and busy season with, it is hoped, the brightest prospects in view, and we trust successful results in store to crown their labours and anxieties. I say anxieties, because few gardeners escape these, however comfortable may be their position and circumstances, unless, indeed, they are indifferent to consequences; but those who are anxious to succeed do not take matters so easily, and to excel in their calling means one continual study and care, not only of matters under immediate notice, but also to be prepared for emergencies, which, as many truly know, often come upon them at dates and seasons most difficult to meet and carry out. Old practitioners can meet and readily overcome many difficulties, but not so the young beginner, and it is to such that these remarks are penned, and which, I trust, may assist many to cope favourably with some of the many dilemmas a young gardener often finds himself in.

The value of the working and carefully noting results can only be understood and appreciated by those who have adopted this useful and interesting practice, which when once earnestly taken up becomes a habit, and what a store of useful information is thus laid up for future reference and guidance. If young men would only note matters of interest during their journeyman and foreman days they would be laying up a harvest to draw from when placed in a more responsible position.

One of the greatest helps to a gardener is knowing how to time his crops. It is very annoying to find that on the eve of a large party, when he is expected to give a good display of his abilities, to find that a crop is past and the succeeding one not "in." Such things have occurred and do occur very often, but when notes have been taken for several years, and "timing" the different crops in their different stages, a sure guide is formed whereby one is able to turn and work accordingly to produce his crops to suit any occasion, presuming due notice has already been given. Thus it will be seen, that supposing a grand display of forced plants and cut flowers is required for a certain date, a properly kept note book ought to tell the grower how long say it would take Lily of the Valley or any other plants to fully develop after being placed in a certain temperature.

The same remarks hold good of fruit growing, with the exception in one sense of Grapes, which so long as they are ripe can be used when wanted. Even with Vines records ought to be kept of the time, under different temperatures, the different stages of growth occupy from "breaking" to flowering, flowering to stoning, and from stoning to ripening. It is, however, more with such crops as forced Strawberries and Peaches, fruit that will not keep any length of time, that requires the closest attention, as the different varieties are subject to a wide margin in "turning in," and it is only by noting these differences in varieties under diverse conditions and treatment that any true criterion can be formed. When once grasped the grower is master of the situation, and he goes on with his undertaking with the full knowledge that he is adopting the proper method to ensure certain results, and seldom are such men wide of the mark, and their study of "timing" forms no mean part of their cultural skill.

It is not so with the cultivator who has never thought this worth looking after, and merely trust to his experience, which in some cases is not very large. When called upon to meet certain requirements at certain dates he finds then the want of a record to work on. Work under such conditions becomes a great anxiety to him, with the result that he worries himself and those about him, first from the fear of being too early, the next day, perhaps, from fear of being too late, and regulates the temperature accordingly, thereby trusting chiefly to good fortune to fulfil what he lacks in knowledge.

I know no occupation more interesting than noting different subjects under different treatments and conditions, such for instance as in Pine growing, how these one season vary or correspond to another in the time of "showing," flowering, and ripening. Melons, too, are worthy of notice, and it is surprising to find how these vary, according to the season, in the time from setting to the ripening period.

My remarks have been chiefly with plants forced under glass, but the same interest should be shown in kitchen garden crops generally, in fact more, as season and situation affect these more than the others. Many crops fail through the seed being sown at the wrong date, such as Celery "bolting" through being sown too early in one district though the same date might suit another. Spring Cabbages not standing the winter or not turning in as early as wished, generally proceeds from the seed being sown at the wrong time. It is the same with many other crops, which if their failures or the opposite were carefully noted would save many disappointments, while it would make work more pleasant and do away with many of a gardener's anxieties. I have practised it and proved its value.—R. PARKER, *Impney*.

CATERPILLARS AND FRUIT TREES.

In a somewhat elaborate article on "Enemies of the Apple and Pear," published in the Fruit Conference issue of the Royal Horticultural Society's Journal, several insects and their work are illustrated; but singularly, what is probably the most destructive pest of all, is not mentioned either by the author or in the discussion that followed the reading of the paper at Chiswick last October.

We allude to what is popularly known as the winter moth, or, scientifically, *Cheimatobia brumata* (Stephens).

On page 39 Mr. S. T. Wright of Glewston Court referred to this scourge



FIG. 16.—THE WINTER MOTH.
Winged male, wingless female, and caterpillar.

of the garden and orchard as follows:—"Probably the greatest drawback in fruit culture is the caterpillar plague. Last year the damage done was immense, and this year I fully expect an even worse attack

unless something unforeseen occurs. Fruit trees, forest trees, and hedges are thickly studded with the eggs of the winter moth; and though we had a splendid autumn for fruit trees, ripening their wood and perfecting the fruit buds, the outlook is decidedly gloomy. The person

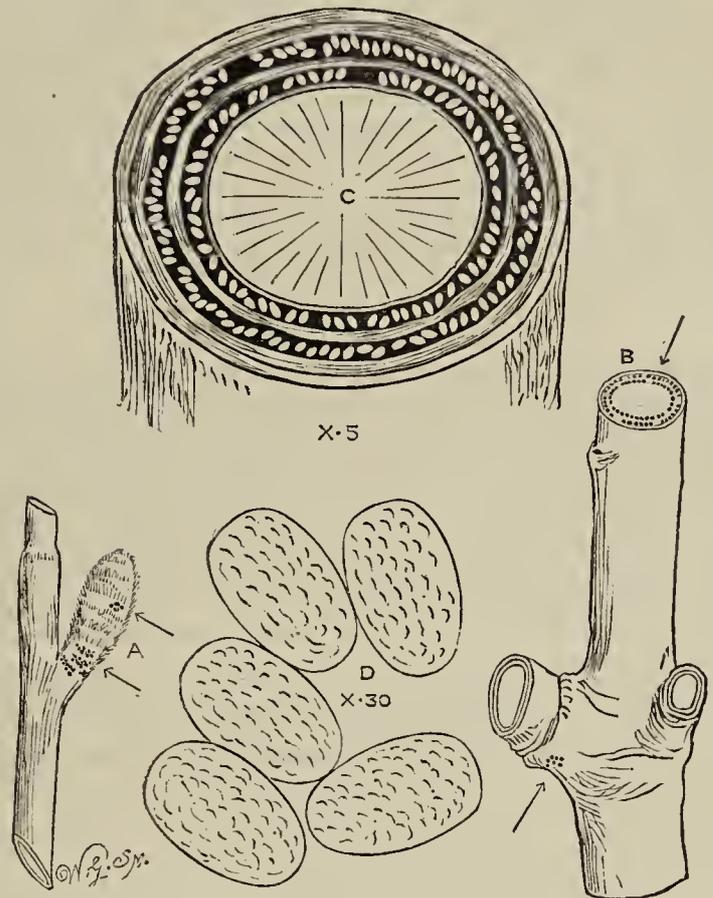


FIG. 17.—EGGS OF WINTER MOTH.
A, shoot natural size, with eggs on bud; B, stem natural size, with eggs in the end; C, the stem increased 5 diam.; D, egg magnified 30 diam.

who can invent a certain remedy for this pest will deserve a country's gratitude and a well filled pocket."

The winter moth (fig. 16) is so named because of emerging from pupae in the ground in October or November; at least the male insects are usually seen flitting about in the twilight then, for their habits are nocturnal. Only the male, which has a yellowish grey body and ashy grey wings, can fly, the female having only rudimentary wings, useless for purposes of flight. The egg-laying insects crawl up the stems of trees, and thousands have been caught by bands smeared with adhesive mixtures, but these have not always been effective. Whether through being applied too late, or whether there is some other method of ascent, is not known, but it is certain trees that have been bandaged had every blossom and leaf stripped off them in May and June.

Authorities, who copy one another with more or less fidelity, tell us the eggs are deposited on twigs, buds, and in crevices of the bark. That is so, no doubt, but, as Mr. S. T. Wright pointed out last year, infinitely more are packed away where they have been little suspected—namely, in the ends of the shoots or cuts left in pruning. A slight shrinkage occurs there, and interstices are thus formed between both the outer and inner layers of the bark. These our correspondent, we think has proved, are the favourite resting places.

He recently sent us a number of twigs and snags cut from the trees under his charge, and in every sample there were a hundred times more eggs in the cut ends than on the buds or the bark. Two of these portions, one (A) with eggs on the bud, the other (B) with eggs in the end of the stem, also under a spur—the arrows pointing to them in each case—were sent to Mr. W. G. Smith for engraving, natural size, with an enlargement of the stem (C) for showing the eggs more clearly; some of them (D) he has also enlarged considerably. There is no mistake about them, nor of the place of concealment that is depicted with exactitude in the figure.

The discovery of our correspondent—for such, we think, it may be fairly regarded, and now for the first time made visible to the world—is a step in advance in knowledge on a subject of very great importance. He now wishes to know how to destroy the myriads of eggs, and intends making experiments to that end. We can, however, tell him how to destroy the bulk of them, and we hope he will try the simple method

very carefully with some trees if he cannot on all, for we believe he has a few thousands to attend to. It consists in the prosaic work of pruning the trees again, cutting off the end of every shortened shoot or snag, young or old, that can be removed with a knife, and taking particular care that the nests full of eggs are hurned. It is not very likely the mites of caterpillars that may hatch from eggs, which may perchance fall to the ground, could ascend the trees, but when risks can be avoided it is better to avoid them. The eggs will not fall out of their positions during the pruning, but the severed nests may fall accidentally.

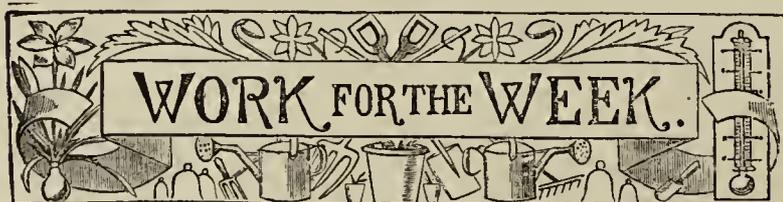
Trees pruned again at once as suggested, and further washed with a petroleum, arsenical, or other solution that may be hoped to spoil the eggs on the huds and branches, ought to be comparatively free from caterpillars in the spring; for disposing of the foe that may emerge when the blossoms are expanding and young leaves unfolding we know of nothing safer to use than a solution of hellebore.

MOSS ON LAWN.

YOUR correspondent "G. B." will derive much good by treating his lawn as you advise (page 78) for the destruction of moss, but it may only be temporary, and if his soil is of a clayey nature, draining of itself will perhaps not accomplish the desired end—at least we have not found it so. The fact is, lawns are necessarily subjected to most irrational treatment. They have often to be rolled and mown when very wet, and as a consequence the soil becomes puddled, and the pores stopped, thus preventing the water percolating through to the drains. We well drained our lawn six years ago—2-inch pipes were laid into a 3-inch main, the former 2 feet 6 inches deep and 6 yards apart, the latter 3 feet deep, and the drains were filled to within 1 foot of the surface with rough hallast. We can, however, and have this winter, raked off moss by the cart-load.

The best way to kill moss on lawns is to pare up the turf and dig, or, better still, hasterd trench the ground, working in at the same time a quantity of gritty matter if the soil is of a heavy nature. As soon as the weather has sufficiently fined down the surface, and it is sufficiently dry, the same turf can be relaid however mossy it may be, for it will sure to disappear the first season, and the finer grasses will abound. We did part of our lawn after this manner four years ago, and there are now no signs of moss. The growth is fully a month earlier, and the yield of grass double that of the part not so treated.

Young gardeners should take note of this, for it undoubtedly proves that earliness and fertility do not always depend upon geographical position and unlimited manure, but on the healthy mechanical condition of the soil. Mossy lawns treated as above can be made much firmer with less rolling—a circumstance which lawn-tennis players will appreciate.—J. H. W., *Leicester*.



HARDY FRUIT GARDEN.

IMPROVING ORCHARD TREES.—Although comparatively young trees, or those that have not long since arrived at a good bearing state, are likely to prove most profitable in the end, especially if the selection of varieties is a judicious one, it does not follow the older orchards will not pay for any further attention; on the contrary quite the reverse holds good, large old trees of Blenheim Pippin, Warner's King, Beauty of Kent, Reinette de Canada, Tower of Glammis, and others that might be named not unfrequently producing really valuable crops. In any case the larger and more perfect the fruit the more valuable is the crop, even if only devoted to cider making; therefore freely thin out the branches in all instances where they are much interlaced, the aim being to admit as much light and air to those reserved as possible, even if this does necessitate the removal of two or three large faggots of wood from a single tree. Not unfrequently orchard trees have overgrown each other, and the more worthless of them ought therefore to be cut clean out, or all should have the straggling main branches well shortened back. In after years a little timely thinning will obviate the necessity of this wholesale pruning, and an improvement will soon be manifested in both the quality and weight of the crops borne by trees thus well attended to.

STUNTED AND MOSSY TREES.—In low-lying positions and clayey subsoils the trees of Apples especially are liable to become stunted and covered with lichen and moss. Improving or renovating the system of drainage will sometimes do much towards recovering the trees, but it is not an infallible remedy, and on the other hand may easily be overdone, too little moisture left in the ground being almost as bad as having too much at certain parts of the year. A deep 3-inch pipe drain in the middle of every second clear space between the trees ought to be sufficient, and if it is seen the old drains are choked by tree roots it will be found cheaper and better to lay quite new drains rather

than search out and restore the older ones. Forest trees, notably Elms, are a great nuisance near an orchard or garden, their roots penetrating to a great distance, and soon choke up any drains they find their way into. The good old plan of well scrubbing the stems of Apple trees with a stiff brush or broom and rather strong urine is yet the best for temporarily removing moss and lichens, and thoroughly coating the affected portions with lime or strong limewash also answers well, but neither are thorough cures unless superfluous moisture is drained off.

FRUIT FORCING.

VINES.—Early Forced in Pots.—Afford copious supplies of tepid liquid manure to Vines in pots. Thin the bunches somewhat freely, so as to induce large berries, not, however, making the bunches loose, though that is better than small-berried clusters. The temperature should be maintained at 65° at night, falling to 60° on cold mornings, 65° to 70° by day, admitting air at 75°; increasing the temperature with the sun heat to 80° or 85°, closing the house at 80°, with a prospect of an advance to 85° or 90°, at the same time damping the house. Damping is also necessary in the early part of the day. Great care is necessary in ventilating. During sharp weather admit air moderately, so as not to reduce the temperature much, but to prevent its rising suddenly.

Earliest Forced Houses.—The earliest Vines require careful attention now. Remove all loose and duplicate bunches, thinning the berries as soon as they are well formed. If there are no fermenting materials in the house, charge the evaporation troughs with liquid manure, but not urine, or 1 lb. guano dissolved in twenty gallons of water, and the borders may be sprinkled when closing the house, or early in the afternoon. Where results are of more consequence than appearance a portion of the fermenting materials may be removed and the whole of the inside border surfaced with manure from the stables, which must be turned several times before it is introduced, or the ammonia will be too strong for the tender foliage. The inside border, before being covered with the manure, must have a good supply of water, tepid, but not exceeding 90°. This, with the leaves in an active state, will incite root action, and the berries will swell freely. Avoid cold currents of air, also steam arising from highly heated pipes, both being prolific of rust. The heat of fermenting materials on outside borders must not be allowed to decline, but should be renewed as required. Where no fermenting materials are used care should be taken to prevent the roots in outside borders becoming chilled by cold rains or snow, having wooden shutters or tarpaulin so disposed as to throw off the rain or melted snow. Attention will be required in tying the shoots and in stopping the laterals. It is assumed the shoots have been stopped two or more joints beyond the fruit. Where the space is restricted they may have been pinched to one or two joints, and in any case the auxiliary growths may be rubbed off except from the two lowest leaves, those above the fruit being stopped to one joint. It is of the utmost importance that the principal foliage be fully exposed to light and air, therefore stop the auxiliary growths at the first joint; at the same time very close stopping is not to be recommended where there is room for extension, as an increase of foliage promotes corresponding root action; therefore preserve all the foliage consistent with its full exposure to light, overcrowding and overcropping being highly prejudicial.

Houses in which Vines are in flower should have a steady night temperature of 65°, 70° to 75° by day by artificial means, and 5° to 10° more from sun heat. Muscats 5° higher all round. Black Muscat and other varieties liable to set indifferently may be assisted by tapping the bunches every day, or more certainly by applying ripe pollen, drawing a brush lightly over the bunches. A constant circulation of dry warm air is conducive to a good set, and it is advisable not to stop the growth closely during the setting period.

Vines Started Early in the Year.—Syringe the roots twice a day until the bunches are formed, when it is best discontinued, but maintaining atmospheric moisture by damping the paths and borders three times a day. Increase the temperature to 55° at night and 60° to 65° by day, with an advance from sun heat to 75°, with ventilation in accordance with the state of the external air. Avoid damping the hot-water pipes when they are highly heated, the steam arising therefrom being very different from that given off by cooler surfaces. Keep up a supply of ammonia in all the houses by turning the fermenting materials and adding fresh horse droppings; or if that be objected to the house may be sprinkled with liquid manure, the evaporation troughs being filled with the same. Ammonia vapour not only aids the growth and texture of foliage, but is inimical to red spider.

Houses for Affording Ripe Grapes in July.—Start the Vines not later than the beginning of next month. There is no need to cover the outside border with fermenting material, but a covering of leaves or litter is necessary to prevent chill. A bed of fermenting material inside the house conduces to a good break by securing a uniform moisture. Syringe the rods three times a day, maintaining the temperature at 50° at night and 65° by day with sun heat. Water inside borders with liquid manure at 90°, and repeat as necessary, so as to bring the soil into a thoroughly moist state.

KITCHEN GARDEN.

THE WEATHER—Owing to the continuous and excessive moisture of the soil, we have not been able to dig or trench much lately, and these operations must be pushed forward as soon as circumstances will permit.

SOUTH BORDERS.—These are the best of all positions for the earliest vegetable crops, and when they are well drained and fertile they will

produce crops ready for use several weeks before the main quarters. The soil should be thrown back from the front to form a good incline, adding fresh soil if necessary for securing the desired advantage.

CARROTS.—Those sown in frames on hotbeds are showing through the soil, and a little air must be admitted on fine days, as it is a great mistake to allow them to be drawn at first. So soon as they can be handled thin out the surplus plants, but only sufficiently to allow the others to form roots for drawing for early use. Another frame may be sown to succeed these, and early in February, when the soil on the south border is in good working condition, sow a few rows or a bed there, using seed of Early Horn variety in each case.

POTATOES.—Those in hotbeds are pushing strongly. We admit a little air on all favourable occasions, and place mats on the glass every night, whether it is frosty or not, as the plants are so delicate that any neglect in this way might ruin the crop. The soil in which they are growing must be kept moist, but not too wet. More may be planted on other beds, and it will be found that these will make rapid progress, and may in the end equal those planted several weeks ago. Tubers intended for planting in the open for the first crops should now be spread out in a suitable place to induce the formation of robust shoots.

PEAS UNDER GLASS.—We do not raise many Peas in pots on turves, as we find sowing in favourable positions in the open ground answers our requirements. However, all have not favourable positions who desire very early Peas, and these should now make a good sowing in pots under glass, with the object of securing healthy plants for transferring to the open ground in March.

CAULIFLOWERS.—Stir the surface of the soil between the plants that have been in frames and under handlights since last autumn, and water them with liquid manure, to induce the production of new roots before planting them out. Seed of the earliest varieties may be sown in shallow boxes and placed in a gentle heat. We raise many plants in this way, and often find them as early as the others and better.

PLANT HOUSES.

Crotons.—Large heads that were rooted in August, wintered in 6 and 7-inch pots, and intended for growing on, may be placed into 10-inch pots. Do not disturb the roots further than is necessary to remove the old drainage. The pots should be liberally drained, and the soil pressed firmly into them. Young stock that has been preserved in various sized pots for decorative purposes may now be potted. If possible plunge the pots in a bed of litter and leaves, the gentle bottom heat they will enjoy will soon start them into root activity and growth. The syringe may be used lightly once or twice daily, according to the weather. Supply carefully with tepid water until the plants are rooting freely in the new soil. Crotons do well in a compost of fibry loam, sand, and one-seventh of manure. A 6-inch potful of soot mixed with each harrowful of loam will prove beneficial to the plants. Before potting be careful to place the soil in some position where it can be thoroughly warmed. Pot the plants in the house in which they are to be grown. Too much care cannot be taken to prevent their receiving a check. Where a close frame and brisk bottom heat can be supplied, cuttings in quantity according to demands should be inserted without delay. Be careful to take the cuttings where the wood is thoroughly soft. Cuttings with a moderately soft base root in one-third the time that is the case with those that have firm wood. The cuttings will also root without losing a single leaf, but when the wood is firm at the base, nearly every leaf will fall before the cuttings are rooted.

Marantas.—Where division of these plants or the reduction of large plants is necessary the work should be done at once. These plants dislike strong sunshine and must be repotted early, so that they will become thoroughly established before the sun gains much force. The plants have then a long season's growth before them. Drain the pots liberally, and render the soil open and porous by the addition of sand and charcoal. Some kinds do well in fibry peat, others in loam, but the majority succeed in a mixture of both, with charcoal and sand added, or the addition of broken crocks. Strong-growing Marantas of the zehrina type succeed in fibry loam, a little manure, charcoal, and sand. Plunge the pots in brisk bottom heat, where the atmosphere is moist and the temperature ranges about 65° at night.



HINTS FOR BEGINNERS.

THE WEATHER.

AFTER ten days of extremely wet and stormy weather we have had a fall of snow with a temperature of 14° Fahrenheit, the lowest record of the season. For some days previous to the fall of snow the temperature fluctuated greatly, running from freezing point to 52° in an hour's time, which is always sure to occur when the elements are so disturbed as they have been since the end of December. The effect such storms have had on the bees was to bring them out when the temperature rose. When calm no loss of bees occurred, but when windy some never returned. This was

more noticeable with bees located in hives with solid projecting floors than in ventilated ones. Such hives are now in a thoroughly saturated condition, which creates cold and is fatal to bees, and makes them restless, consequently dwindling hives. All hives of such a nature should have their floors immediately changed, and the hives, which are sure to be damp, thoroughly dried, or the frames with bees transferred to clean and dry hives. All hives having wide entrances will be found to be the dampest.

SWARMING v. NON-SWARMING.

About thirty years ago the advantages of non-swarming hives were fully explained, while recently considerable attention has been paid to them, and all that was of value to the bee-keeper and beginner made clear. Swarming can only be prevented by introducing a young and fertile queen at the proper time, taking care that ample breeding room has been provided. Bees will swarm from a hive not more than one-third full, but I need not take up space in repeating what was made clear so lately in these pages. "A Howdenshire Bee-keeper" says, "Some bee-keepers have tried the non-swarming system, and failed simply because they did not attend to the wants of the bees in time to prevent the desire to swarm."

Giving room in time appears to be the means adopted by your correspondent. The plan may succeed for a time when under-sized hives are used, but will not when non-swarming hives are of the proper size. Adding supers in any case is not the proper thing to do, but more breeding room, and unless worker comb is provided drone comb will be built, which will only hasten what we wish to prevent, and this in some cases when foundation has been given.

Scarcely a season passes without some of our non-swarmers swarming, but we do not mind this, as an interchange of partly filled supers and some of the frames from the stock to the swarm puts all right, and then swarmers always give the greatest results when we have a prolonged season. The past year was no exception to non-swarmers swarming, particularly at the Heather, where taking it all round 70 per cent. of the hives swarmed, and yet every one of these was provided with ample room in good time, but swarmed notwithstanding.

YOUNG QUEENS.

Apropos of the above a query has been addressed to me, "What is the best kind of queen to keep to increase swarming?" I replied that a youthful queen was certainly the best for swarming purposes. This answer provoked another query, "How can I reconcile the statements that young queens are best for both purposes?" My reply was that bees only prepare to swarm when breeding does not go on in accordance with what appears to be their desire, therefore a young queen having plenty of breeding space meets the bees' desires, and royal cells are not formed. On the other hand a young queen is the best stimulative of bees, and young bees are brought forth in greater numbers, filling the hive more quickly and earlier than where there are aged queens. The swarms, too, are larger provided extra room is not given to a moderate-sized hive; but after a queen has laid constantly for months she does not deposit so many eggs, and this may be the sign for bees to raise successors. There is nothing paradoxical in this, and the beginner should bear all that in mind, and keep a constant watch upon all non-swarming hives, or some day when least expected, and when the expectation of a harvest is high, they will swarm.

THE LANARKSHIRE HIVE.

In reply to "J. D. L., Northumberland," it may be said that it is immaterial whether the top bars be 14 $\frac{1}{2}$ or 14 $\frac{3}{8}$ long. The main thing to be guided by is the size of the hive, which should be square, having nine frames spaced at 1 $\frac{1}{2}$ inch apart from centre to centre, having the outer spaces a quarter inch wider, 14 inches being the exact size inside. The rebate to receive the frames is the same as the check in the ends being nearly $\frac{1}{4}$, leaving fully three-eighths.

of a lip, the ends being three-sixteenths longer a bottle or head is wrought upon the ends, which gives a neater appearance and saves the planing of the wood after it is nailed. The sides are cut one-sixteenth longer than the top bars; this gives the necessary slack, and if a gauge is used for working both sides and bars, and neatly cut, there will be a proper fit of all the pieces.

Let the end pieces, or hangers to the frames, be five-eighths of an inch clear from the bottom, but have no bottom rail; that in shallow frames is unnecessary, it takes up room, the bees seldom building their combs to it, and the bees are more liable to soil their combs with than without bottom rails. With deep frames it is different. Elsewhere it has been stated that dispensing with the bottom rail was a retrograde movement. Had the author of these words visited us when in Scotland lately he would have been convinced to the contrary, and gained other useful lessons besides. It would be very interesting to know when the British Bee-keepers' Association adopted the standard hive, disallowing other sorts to compete at their shows, and then ultimately to adopt a shallow frame, where the retrograde movement came in.

The divisions are $6\frac{1}{2}$ inches deep, and allowing half inch for the top bar, measure 6 inches inside, the front being half inch less, this is the doorway. A pair of five-eighths match ploughs are the proper tools to groove the front and tongue the slide, which should be half an inch broad, running the whole width of the hive. I use the same sort of box, and same size as the body ones for sections, when nailed to top bar, when held in angled tins a half inch shallower. For a full strength hive two divisions do very well for small supers, but I use one 9 inches deep in addition to an extra $6\frac{1}{2}$ one, this gives space for three rows of supers, and 3 inches for packing above. Yellow pine is the best wood for hive-making, allowing the escape of moisture more freely than white pine, only used within the past fourteen years or so on the pretext that hive makers were charging an exorbitant price, but in reality the white pine hives are the dearest and least satisfactory in the end, having cheapness only for its recommendation. Yellow pine hives, or other articles made from it, will wear white pine goods many times over, and where price is no objection should be used.

BEES HYBERNATING.

I hope "A Hallamshire Bee-keeper" does not think I am opposed to his method of queen-rearing. I am perfectly confident that queens reared on the lines he lays down are superior to those obtained by some, but I fail to see that bees hybernate during winter. The 12th of January he speaks of was fine here, and the Punic bees I had from him were working on the Arabis and every hive flying, and on the day after, the lowest temperature for the season, many bees showed themselves outside. How is this if they hybernate? I quite agree with him that progress should be the motto of all, not only with bees but with everything. I certainly do not think that my methods of managing are perfect, but I do not hesitate to say that what I have taught is ahead of most bee-keepers. This is proved by the simple fact that both in this country and on the Continent they only follow instructions taught by me years ago. This "A Hallamshire Bee-keeper" well knows, as I also know that some of his ideas are claimed by bee-keepers both in this country and in America. Fate may in due course put these matters aright, but neither of us will be prevented giving useful information in the future which may crop up, and which our experience enables us to give upon a reliable basis.—A LANARKSHIRE BEE-KEEPER.

P.S.—Bee plants in flower are Arabis, Wallflowers, and Primroses, also Hellebores, Aconites, and Snowdrops.

TRADE CATALOGUES RECEIVED.

J. & R. Thyne, 83, Vincent Street, Glasgow.—*Descriptive List of Garden Seeds.*

Hooper & Co., Covent Garden, Maida Vale, and 83, Regent Street.—*Seed Catalogue, 1890.*

J. Lambert & Son, Treves.—*List of Seeds.*

Leonard Coates, Napa, California.—*Catalogue of Fruits and Trees.*
James Yates, Underbank, Stockport.—*Catalogue of Carnations, Picotees, Pinks, &c.*
Brnant, Poitiers (Vienne, France).—*Catalogue of Plants.*
W. Tait & Co., Capel Street, Dublin.—*Select Annual List, 1890.*
Hogg & Wood, Coldstream-on-Tweed.—*List of Garden Seeds.*
G. Stevens, Putney.—*Catalogue of Chrysanthemums.*
Merryweather & Sons, 63, Long Acre, London.—*List of Watering Hoses.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Turfy Soil (F. C.).—The value of turf for purposes of cultivation depends on the nature and quality of the soil from which it is cut.

Grass Seeds (E. B.).—If you state your requirements to your seedsman you will be supplied with a suitable mixture for the purpose in question.

A Cheap Book on Orchids (H. T., Frome).—The information you require is contained in Mr. Lewis Castle's book on Orchids, published at this office, post free, 1s. 2½d. You have been rightly informed, and you should have no difficulty in successfully managing a small collection. Orchids, however, like other plants, require constant attention, and if you encounter unexpected difficulties we will gladly assist you with advice upon any point.

Unfruitful Pear Tree (J. F. W.).—Has the tree been planted too deeply? If there are few or no fibrous roots near the surface fork away the soil down to the larger roots and for a distance of 3 feet from the stem, and add in place of it a mixture of good loam, decayed vegetable matter, and wood ashes—as many of these as you like—press down firmly, and surface with littery manure, thick enough to prevent the sun drying the fresh soil in summer. New roots will then take possession of the added compost, and the tree will improve in health and fruitfulness.

Improving Lawns (J. W., Ryde).—A mixture was named on page 78 last week for applying to lawns now with the view of improving them, and will do good whether there is moss in them or not; but drainage is often needed when the soil is of a clayey nature. When this and the dressing fail to improve the verdure a method that has been found very successful is described by a correspondent on page 96 of our present issue. A hundredweight of bonemeal added and a bushel of soot to each cartload of the mixture would improve it considerably, and if you have not enough for dressing both lawns apply what you can to that on chalk, and give the other a dressing of three parts of superphosphate of lime and one part sulphate of ammonia, at the rate of 5 cwt. per acre, or 2 ozs. to each square yard. The sooner the applications are given the better. Making lawns black with soot on a showery day also improves the verdure. If there is no Clover in the grass and you want some apply two parts superphosphate, one part each of kainit and sulphate of ammonia.

Violets in Frames (J. H.).—The method which you have been instructed to adopt of "planting single runners of Violets in cold pits in October" is not the best for affording a good supply of blooms in winter. We have seen stout runners with good crowns inserted an inch or two apart in boxes of light soil kept moist in a warm light house afford blooms plentifully in a few weeks, but no such results could follow in a cold pit. Only failure could be expected by the plan you describe, but as you acted "under orders," obviously the fault does not rest with yourself. Rooted offsets should be planted in good soil in the open air in April, the runners suppressed, red spider subdued, and strong plants with bold crowns will be produced by autumn for establishing in pits or frames before winter for flowering during the dull months of the year, the supply largely depending on the weather when no heat from fermenting materials or otherwise is afforded. A hundred times more flowers will be produced by this method than by the one you have been instructed to carry out.



MANURE FOR CEREALS AND ROOTS.

THE best crop of roots we had last year was in a twenty-acre field, half of Mangolds and half of Swedes, at the home farm. The Swedes were after Rye, after Barley; the Rye was folded by ewes and lambs, the trough food consisting of crushed Oats and Mackinder's Lamb Food. The Mangolds were after the same crop of Barley, but as no Rye had been sown on that part of the field, deep furrows made with the double-breasted plough were filled with farmyard manure, carted direct from the yards to the furrows, and covered at once by passing the plough along between the rows, and the ridges were pressed slightly with light Barley rollers both before and after the drilling. This, we may explain to beginners, is termed sowing on the ridge. The Swedes were sown on the flat. No chemical manure was used, but a full dressing of it had been used for the Barley, and the residue, in combination with farmyard manure for the Mangolds and sheep manure for the Swedes, was sufficient to produce one of the best crops of roots we ever grew. No doubt a favourable season and early sowing contributed materially to the final result, but that could not have been nearly so favourable without an ample store of fertility in the soil, and the point we wish to mark especially here is the value and kindly influence of such residue.

It is a golden maxim in farming never to exhaust the soil of fertility, but to replace that taken from it by the cropping of the year by at least an annual dressing of some manure. It was once thought that chemical or artificial manure was only useful for the crop to which it was specially applied, but it has been proved repeatedly beyond question that there is always a residue in the soil after the crop is matured, if a due proportion of mineral manure was used in combination with the indispensable nitrogenous manure. As to the loss of nitrogen in winter, no good can be done by laying undue stress upon that fact, and we are positive that an autumn dressing sown with Wheat, Rye, and winter Oats proves highly beneficial. The Wheat and Oat plant is always much more sturdy and vigorous when the manure is drilled with it, and the Rye is so vigorous that we can always depend upon an early growth for folding, no matter how backward the spring may be. It is impossible to realise the wide difference which manure or no manure makes to Rye unless it is fairly tried out, and we are quite within bounds in saying that with manure the first growth is ready for folding a fortnight earlier than it is without it. Only a hundredweight per acre is required for drilling with the seed, and it consists of half a hundredweight of nitrate of soda, quarter of a hundredweight of steamed bone flour, and a quarter of a hundredweight of mineral superphosphate. Anyone having a backward crop of Rye now on poor land would do well to give it a surface dressing of a hundredweight of nitrate of soda per acre early next month.

A safe mixture for drilling with spring corn consists of 1 cwt. nitrate of soda, $\frac{1}{2}$ cwt. muriate of potash, $\frac{1}{2}$ cwt. superphosphate, $\frac{1}{4}$ cwt. steamed bone flour. This may also be used as a surface dressing for winter corn. Oats have been low in value for some time now, but really good British Oats always command a special price, and if Oats are grown at all it certainly answers to use the best samples of seed, and to manure just as highly as for Barley. There can be no doubt that the average yield of Oats is much below what it ought to be. It is possible to grow twenty sacks of Oats per acre, and if the grain is thick, plump, and heavy, weighing from 40 to 45 lbs. per bushel, it should find a ready market at 10s.

per sack, which price gives a total superior to that of Wheat at 30s. per quarter, and is fully equal to that of the best malting Barley.

The ploughing-in of farmyard manure in autumn for roots has much in its favour if the manure can be had—if not, it is usually applied in the spring, as we have shown. The best results are usually obtained by using a moderate quantity of farmyard manure in the rows, and by drilling chemical manure with the seed. The mixture for Swedes is $\frac{3}{4}$ cwt. muriate of potash, $\frac{1}{2}$ cwt. nitrate of soda, $3\frac{1}{2}$ cwt. steamed bone flour, $1\frac{1}{2}$ cwt. mineral superphosphate. For Mangolds $\frac{3}{4}$ cwt. muriate of potash, $1\frac{1}{4}$ cwt. nitrate of soda, 2 cwt. steamed bone flour, 1 cwt. common salt, and 1 cwt. mineral superphosphate. We can highly recommend these mixtures, but at the same time we say, Do all you can to avoid the heavy expenditure involved in the purchase of them under the most advantageous conditions by folding sheep upon the land so far as is safe and possible.

WORK ON THE HOME FARM.

Store hoggets are being folded on Turnips, the folding being so arranged that the plough can follow closely, and so leave the land ready for spring corn. The higher the sheep are fed the better the manure, but we are satisfied if only we can get sheep enough, even if they only have a little crushed corn and some chaff with the roots. A stickler for high cake feeding expressed his surprise last season at a fine crop of Barley we had after sheep folded on Swedes, the only trough food used being a very moderate quantity of malt culms. No doubt rich manure is a result of high feeding, but undue stress is often placed upon a mere matter of degrees which are practically unimportant.

Ewes are lambing in excellent condition, which we shall do all we can to maintain by a liberal dietary and careful attention. It is impossible to have fine or forward lambs from a weakly or underfed ewe. We like ewes with large substantial frames, well nourished always, and then we may depend upon having good lambs. Mangolds are given freely twice daily, but we are careful to give only as many as can be quite cleared up at each feeding. Every ewe is taken to a separate pen when it lams and is kept there till the shepherd is satisfied that it requires no particular attention and that its progeny is perfectly healthy. It is then turned out with the other sound ewes that have lambed, but all doubtful cases requiring special and frequent attention are kept in a division of the fold immediately under the shepherd's eye. Carbolic oil is as usual of great use in all cases of severe straining and protracted labour. It is indeed a splendid disinfectant, and its timely and judicious use has saved the lives of thousands of ewes that must have been sacrificed without it. As the lambing proceeds every ewe that proves unfit for breeding in any way is marked for withdrawal from the flock with the crones later on. We never retain a faulty animal of any kind for breeding, but invariably prepare it for early disposal in what appears to be the most profitable way. For discarded sheep there is no better plan than to fatten and dispose of them as they become ready for the butcher, which they will be by autumn or early in winter.

METEOROLOGICAL OBSERVATIONS.

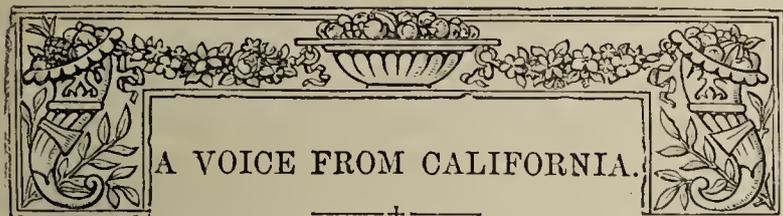
CAMDEN SQUARE, LONDON.

Lat. 51° 39' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Baromet. ter at 92" and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of sol. at 1 foot.	Shade Tem- perature.		Radiation Temperature			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890. January.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	in.	
Sunday	19	29.483	42.7	42.6	S.W.	43.8	49.1	42.4	70.8	37.8	0.610
Monday	20	29.509	36.2	35.1	W.	42.8	43.4	34.6	71.4	24.9	—
Tuesday	21	29.667	35.4	34.8	W.	49.8	45.0	32.9	51.9	27.7	0.107
Wednesday ..	22	29.674	39.4	37.3	W.	40.6	48.1	35.1	71.4	31.4	0.152
Thursday	23	28.712	47.8	45.8	S.W.	40.1	51.6	37.3	83.1	31.1	0.020
Friday	24	29.758	37.8	36.7	S.W.	40.1	54.0	33.8	58.7	27.8	0.080
Saturday	25	29.580	53.7	50.9	S.W.	41.1	55.5	37.3	61.5	32.2	0.038
		29.398	41.9	40.5		41.3	49.5	36.1	67.0	31.1	0.497

REMARKS.

- 19th.—Sharp shower at 9 A.M.; bright sunshine and high wind throughout, but one or two slight showers.
 20th.—Fresh and bright.
 21st.—Bright morning, cloudy at mid-day, wet from 2 P.M.
 22nd.—Bright sunshine and wind all day, rain at night.
 23rd.—Wet from midnight till 10 A.M., sun from 10.30 to noon, gale with showers in afternoon, dull evening.
 24th.—Fine, with occasional sun in morning, solar halo at noon, cloudy afternoon, wet evening.
 25th.—Squally S.W. gales, overcast all day, rain in afternoon.
 Weather still mild, though less warm than in the previous two weeks. After a long period without much wind, we have this week had a succession of gales with occasionally low barometric pressure.—G. J. SYMONS.



MY attention is, for the time being, rivetted upon an article in your issue of December 19th, 1889. In this article Mr. Wright quotes from a gentleman who spent a few months in California, caught a fever there, became homesick, and in the delirium of his fever—for at the time of penning the lines referred to he could not have recovered—he gives vent to the most outrageous statements concerning a country of which, if in his right mind, he is absolutely and totally ignorant. His assertions are so glaringly incorrect that I may well be pardoned for touching upon personal matters in the attempt to show your readers that I know something whereof I speak, and that I have some right to speak plainly.

Regarding references in England, my father, Mr. W. T. Coates of Henley-on-Thames, and Mr. F. Warren of Banbury, late of Croydon, and a friend of the Rev. W. Wilks, the Secretary of your Royal Horticultural Society, can furnish any and all that might be desired. As to my standing in California, I can simply mention the name of Professor E. W. Hilyard, in charge of the Department of Agriculture at the State University at Berkeley, any of the officers or members of the State Horticultural Society, of which I am a Director, the Secretary's office being at 220, Market Street, San Francisco. I have been actively at work in California for fourteen years as a nurseryman and fruit grower, as against the Doctor's sojourn of a few months in, presumably, a very small part of this State, and then ill with fever.

This gentleman observes, and hopes the Journal will be kind enough to insert it, "There is not a blade of grass in the State growing naturally, no hay therefore;" and then this remarkable genius goes on to say, "I have written down a few facts which I have seen myself." Perhaps he will explain how, in a few months, while he was ill with fever, he travelled over a country between 700 and 800 miles long, and several hundred miles wide; and containing 100,218,560 acres! "Not a blade of grass in the State!" While I write, the whole of California, from Siskiyou to San Diego, is an uninterrupted ocean of verdure, except on the high mountains, which at this time of the year are covered with snow. Grass from 4 or 5 inches to 2 feet high, has been so for several months, and will continue the same until May or June. After that time the grasses mature, and there being no more rain, and scarcely any dew until October, the grass is cured, remains sweet, and is more fattening and strengthening to live stock than any artificial feed. "No hay therefore," says this gentleman of amazing insight and keen perception. Because he did not find hay made as in the meadows of old England, abounding in Sweet-scented Vernal Grass, there is "none" here; which reminds me of my little boy, who, when refused any particular food by his mother, assumes the most woe-begone and martyr-like expression, saying, "I haven't anything to eat." The reason we do not cut the wild Grasses for hay is that we can get so much better and more profitable a product by sowing a cereal. The best hay is made of Australian or Sonora Wheat mixed with one-third of Oats, sown any time during the winter months, and cut in May, just when the milk in the kernel begins to thicken. Horses fed with this hay require very little else, unless working very hard. Three tons to the acre is an average yield on valley land. For cattle, or for horses which are not working, Alfalfa hay is often used. Alfalfa (in England "Lucerne") is raised in the whole of Central and Northern California without any

artificial irrigation whatever, producing three crops of hay in one season, and after that serving as green pasturage during the remainder of the summer.

This leads me to another statement of this "disgruntled" (to use an Americanism which is expressive) M.D.—viz., "a country where nothing will grow except under from four to eight hours a day artificial irrigation."

I have no land to sell, neither have I any interest in any which is for sale. I own 90 acres near Napa, besides leased land for my nurseries. I have been growing nursery stock for thirteen years, have raised an orchard of over 6000 trees. I sell from 100,000 to 200,000 fruit trees annually, to say nothing of Grape Vines, berries, ornamental stock, &c., and have never had any occasion to use any water artificially.

In the southern interior portion of the State irrigation is necessarily largely resorted to, for there millions of acres which were thought to be almost worthless, are found to be capable of producing anything that grows anywhere through the introduction of irrigating canals from the melting snows of the Sierras, brought down at great expense for many miles into the broad valleys. The whole of Central and Northern California, extending for hundreds of miles in every direction, is absolutely independent of any irrigation other than that which falls from the clouds. Crops of Indian Corn, vegetables of every kind, Melons, small fruits, orchard fruits—everything, grows to perfection, all that is needed to keep the moisture near the surface being a frequent stirring of the ground with horse cultivators.

In the Napa Valley, where I live, there are ten miles of almost continuous vineyard several miles wide in places, of the leading wine varieties principally. The wines made here are clarets, burgundies, sauternes, and all dry wines and brandies, and farther south ports and sweet wines are more common. The output of the last vintage was about 18,000,000 gallons. At the Paris Exposition California received a large number of awards for her fine wines. The Sonoma Valley, west of Napa, is very similar, but more extensive. Vaca Valley, to the east a few miles, is one unbroken orchard, tens of thousands of acres of the finest varieties of Peaches, Apricots, Pears, Plums, Figs, and every other fruit. Whole trainloads are sent every day for months of fresh fruit to the Eastern States, Chicago being a main distributing centre, but we find a ready market 3000 and 3500 miles away by rail. Thousands of tons are sent to the fruit canneries and preserving houses, the great bulk, however, being often dried or cured as raisins are cured. The Santa Clara Valley, farther south, is a vast region with hundreds of thousands of acres of orchards of French Prunes, Apricots, Pears, &c. The samples of these fruits which I exhibited in London last summer were acknowledged to be far superior to any European product. And all this, and much more, is but a small spot within fifty or sixty miles of San Francisco, and nowhere is irrigation resorted to. I will not take up your valuable space by enlarging upon the raisin districts, where in Fresno alone are 350,000 acres of Muscats all made into raisins that equal, if not surpass, the best Spanish product; of the many miles of Orange and Lemon groves, of orchards of 500 to 2000 acres in extent, of individual vineyards of 10,000 acreage, of Olives, Walnuts, Almonds, Figs, and all the temperate and semi-tropical fruits known.

But what a cruel libel to speak of California as lacking in flowers! As a boy in England I took great pleasure in forming an herbarium of wild flowers, and made a large collection, but in California what a revelation! Here I find scores of carefully cherished annuals and biennials in England growing as weeds by the acre, the woods abounding in Lilies, and the hills with Azaleas and a thousand other choice floral beauties.

The doctor caught fever and ague in the Sacramento Valley; I caught the hay fever in England last summer, making the first two months of my visit far from pleasant. In the river bottoms

there are occasional cases of malaria here, as anywhere else, but why select such a spot, if predisposed to such a complaint, when there are one hundred millions of acres more in California entirely exempt from it? In some parts of the State are great numbers of invalids, a truly one-lunged crowd; but they have come here to prolong their days. California is one great sanatorium for all diseases, for there is here every conceivable climate and temperature, between the shores of the Pacific Ocean and the summit of the Sierras. Such a temperature as 115° in the day and 54° at night is never heard of; the temperature in the Sacramento Valley rarely exceeds 100°, being usually about 85° in the summer, and 60° at night. In the part of the State in which I live it is even more equable, while in San Diego it averages something like 65° all the year.

If I were to land in London on a foggy day in November, and describe the English climate from that experience, it would be no more unjust than this gentleman's description of the Californian climate. Your correspondent does not think any land in California worth five cents an acre. When our orchards and vineyards at five years old and upwards are yielding a net income of 100 to 500 dols. per acre, it will be seen how foolish is this statement. The best valley lands along the line of the railroads sell at about 150 to 200 dols. per acre (£30 to £40), and pay a very large interest on the investment. Equally good lands can be had very much lower, in proportion to the distance from means of transportation to market.

The Doctor found no vegetables fit to eat, and the meat was bad. I will challenge any market in the world to show such an almost infinite variety of the choicest vegetables the earth produces as that of San Francisco or any market towns in California. Asparagus as common and as cheap as Cabbages in England; Cauliflowers and Green Peas all the year round, and indeed almost every known vegetable is to be obtained every month in the year. I will admit that the meat is not all as good as the choice cuts from English beef and mutton, but the reason is, chiefly, that either it is not hung long enough, or the purchaser is green and allows his butcher to impose upon him. As the cookery books say, "If you want choice meat go yourself and select it."

It sometimes happens that in sparsely settled rural districts the best meat is sent to the large markets, as might have been the case with the Doctor. I am able and willing to give facts and figures in support of my statements, which indeed might be made much more glowing without the slightest exaggeration, and could point to hundreds of English and Scotch families here, in affluent circumstances, who can more than bear me out.

If the Editor of the *Journal of Horticulture*, or any representative therefrom, will come and see for himself, I will promise him a royal welcome. To those who may want to inquire carefully into Californian fruit growing I cannot too highly recommend the work just written by Prof. E. J. Wickson, and published by Dewey and Co., 220, Market Street, San Francisco. I could fill pages of the *Journal* descriptive of the beauties and wonders of California and what her incomparable climate and rich soil can produce, all in striking juxtaposition to the acetous, garbled, and pessimistic utterances of your medical correspondent.—LEONARD COATES.

THE USE OF BALLAST, AND HOW TO MAKE IT.

WE have often referred in the *Journal* to the great benefits we have derived from the application of ballast to our stiff soil for all kinds of crops, especially to fruit trees, and our experience with it every year tends greatly to strengthen our convictions—viz., that it is one of the cheapest and best means of rendering a stubborn tenacious soil friable, warm, and fertile. It is a well-known fact that these heavy soils, resting as they generally do on an almost impervious clay, will grow better crops with far less manure than will light sandy soils; moreover, crops are able to endure prolonged droughts better on heavy than on light land. But this proposition is rarely true of heavy soils as found in a state of nature—at least,

as applied to horticulture, for however well they are managed in winter the dashing rains of spring quickly wash the particles of clayey soils into a compact coherent mass, which effectually prevents the free admission of air, sunshine, and rain. Plants under such adverse conditions can never make satisfactory progress. The roots of fruit trees will be strong and fibreless, and their shoots strong, sappy, and fruitless. Of course, for these cold and retentive soils draining must be resorted to as a partial remedial measure, but we have abundantly proved that draining, however well done, can only be considered as an adjunct in the improvement of stiff soils. It is not sufficient to well drain a pot; we must also fill it with a compost that will allow water and air to pass freely through it, and so it must be with the soil of our garden if we wish to grow flowers, fruit, and vegetables to the highest state of perfection.

The mechanical condition of many well drained heavy soils is analogous to putty, and the drought of summer causes them to contract and form deep fissures in all directions, pinching and snapping the roots of plants and rendering them inactive. In wet summers the evils are even greater, for the temperature of the soil can never rise sufficiently high to excite healthy root action, and the invariable result is sappy unhealthy growth, which of itself is sufficient to lay the foundation of disease and ruin in many kinds of fruit trees.

If we inquire why the heavy soils are unkindly we shall find it is largely owing to an insufficient quantity of gritty matter or sand. The earth particles of clay soil are so fine that they run too closely together for the well-being of vegetation. Having arrived at the cause the cure is obvious—viz., add sufficient sand or analogous matter to prevent the cohesion of the clayey particles. This will at once render the soil porous, much warmer, and better suited to healthy plant growth. In the majority of cases it is impossible to get sand in sufficient quantity to be of much use, and the same may be said of lime rubbish, which is very good for the purpose; hence we must make use of the matter to hand of which we have too much. Burnt clay, or ballast as it is called, will be found an excellent substitute for sand; indeed, if properly burnt it is far preferable to sand for rendering stiff land porous. We have had much experience in clay burning the last eight years, having burnt many thousands of tons, and the following is our *modus operandi*.

The cost of burning will be in proportion to the burner's wages and the price of slack in the neighbourhood. One ton of slack, which with us varies from 5s. to 7s. per ton, will burn from 30 to 50 tons of clay, according as it is wet or dry. If plenty of wood can be secured it will burn the clay just as well as coal, and the residue will be still more valuable. An important item in clay burning is a good start. A quantity of tree-bottoms or large logs of wood should be raised to a good heat before much clay be applied, for having secured that the fire may be kept going for an indefinite period. The constant aim of the burner must be to keep the fire at the bottom, and that is where he will require the most coal. To secure this he must go round his fire every morning with a long iron scraper, and draw down the burning clay so as to form a ledge about 18 inches wide at the bottom of the burning heap. On this ledge he should sprinkle his coal rather thickly, and when it begins to burn freely, the clay, with a sprinkling of slack, may be thrown on until the ledge has been carried as high as the man can throw it. In this way we have had fires going continuously for eight months. If the fire is kept in all round it will soon become too bulky for one man to attend to; we therefore allow two sides to go out and carry the heap on lengthways.

More slack will be required in wet weather than in dry, and the burner must see that each layer is burning freely before adding another. Some advise wheeling the clay to the top of the fire, but this we find open to serious objections, as if through excessive wet or other causes any part of the fire goes out it is difficult to start it again; besides, it requires more fuel and labour than by the former method. We have found also that the heat is apt to become too great when the clay is wheeled to the top—the clay fuses, and the result is a hard brick-like substance of no use for mixing with the soil. By throwing it on in layers the burner has the heat completely under his control, and if properly managed a loose gritty mass will be formed that falls to powder with the least touch.

Before use the ballast should be passed through a half-inch mesh screen, and for flower bed sifted through a one-eighth inch sieve. This is important, as its mechanical effects will be in proportion as it is thoroughly mixed with the soil. For damp adhesive fruit borders it is invaluable; the roots become a mass of fibre, and its good effects are apparent in the better ripening and higher flavour of the fruit. We must strive for uniformity between root and branch in fruit culture, for although the trees may carry fruit they will

fail to ripen properly if the roots are in a cold retentive border.—
J. H. W., Leicester.

FLOWER CULTURE FOR PROFIT.

TEA ROSES PLANTED OUT.

CONTINUING my remarks from page 83, the handsome and profitable *Maréchal Niel* must have special attention. This variety must annually form long fairly stout shoots, otherwise it is not in a profitable state. It succeeds admirably trained and pruned somewhat on the old extension system practised with Grape Vines. This consists of laying in two main branches right and left along the front plate of roof, these not being stopped till the end of the house at least is reached, this being a pretty good season's growth. From these permanent branches, that are to be the following season a number of lateral growths, should be trained up the roof at short intervals, only the points of these being taken out in the autumn. These strong shoots will early in the following spring push out a bloom at nearly every joint, a single tree being, when at its best, capable of producing two or three thousand blooms. Directly the last of these are over, all these flowering shoots must be cut hard back to near the main branches, and this will result in strong young shoots, pushing out the requisite number of which should be trained over the roof to flower the following season. If preferred a more informal method of training may be adopted, strong leading branches, and some of them will attain a length of 24 feet in one season, being trained over the roof in any direction. These will flower grandly the following season, and in addition also push out strong shoots in places where extra vigorous flowering shoots are cut well back. The latter will bloom freely, and in their turn must be cut back directly they have ceased to flower, in order to obtain the requisite number of flowering growths for the next season. The time will come (I never met with any exceptions) when the early summer pruning will be followed by a second crop of flowers, and this instead of being a matter for congratulation is much to be regretted, as it is a sure sign of weakness and decay. This weakness in the *Maréchal Niel* ought always to be anticipated, other young trees being planted to take their place while yet the original trees are in good health, or otherwise there will be ultimately an unfortunate break in the supply. If they do not canker at the point of union with the stock, or at some of the principal joints in the case of own-root plants, they are yet liable to wear out. As a rule, the stems, whether these be worked or not, fail to keep pace with the very rapid growing branches, and in time a rupture in the sap vessels takes place.

On page 30 the best method of propagating Tea Roses was given, and with these may be included *Noisettes*. If my advice is taken a considerable number of *Maréchal Niel* will be struck every season, flowered once, and then thrown away as being of less value than newly raised plants. Each should be grown with a single growth only; the longer and stouter these become the more profitable they will prove. A well grown young plant in an 8-inch or slightly larger pot can be made to produce blooms in February or thereabouts to the value of 6s., and a good average would be 4s. per plant. The aim should be to get them rooted early, and in their flowering pots in time to spend a few weeks in the open sunshine. When introduced into a moderately warm forcing house in November and December the growths may either be trained up wires on the roof, or say the trellising occupied by Melons or Cucumbers, during the summer, and if this is not convenient then may the plan of lightly training the plants round a few upright stakes be adopted. In the latter case the plants ought to be given good room, and raised well up to the light. A fairly large bud ought to be taken from nearly every joint, and if a little pale in colour they will yet sell readily.

Tea and *Noisette* Roses generally, as I have previously pointed out, will bear moderately hard forcing, but in a more intermediate temperature, ranging from 50° by night to 60° in the daytime, they form much the finest blooms, and remain longer in a vigorous and also floriferous state. All through the winter and early spring months they must be protected as much as possible from cold currents of air, otherwise mildew is liable to be very troublesome. Nor ought they ever to become dry at the roots, the only rest those constantly under glass need being the prevention of flowering during the summer and early autumn months, and abundance of air admitted at the same time. As a rule, the Teas will yield what may be termed three crops before Roses are abundant in the open. To do this, however, they must be well assisted at the roots, especially after they have exhausted the original soil in the borders. They pay well for being treated much the same as Grape Vines at the roots, this taking the form of occasionally partially lifting in the autumn, the front of the border being renewed with fresh compost, and the surface lightly bared to the

principal roots, and top-dressed. The least that can be done is to give frequent liberal supplies of liquid manure, or some kind of special manure may be washed down to the roots. Nor must the foliage of roof-trained plants especially be neglected. These ought to be freely syringed in the afternoon of every clear hot day, otherwise red spider may be the cause of most of the leaves falling prematurely. For a similar reason shading of some kind ought to be afforded during the hottest part of the year. If a decoction of quassia chips and softsoap is mixed with the syringing water, enough being used to make it quite bitter to the taste, green fly will not be very troublesome; but should it gain the upper hand two or three fumigations with tobacco paper is the surest method of getting rid of it. Mildew may sometimes be checked by coating the affected parts with sulphur, but this is not often really effective in other than hot weather. The following will be found an excellent remedy for mildew. Place 1½ lb. of sulphur, 2 ozs of lime, and six quarts of water in a saucepan, and boil down to three quarts. After the solution has settled strain through a muslin bag, store in a jar, and mix with the syringing water at the rate of one wineglassful to four gallons of water.

Many succeed in growing abundance of good Roses, only to mar their work by carelessly consigning them to the markets. It is worse than useless to send fully expanded flowers, and it is also very unwise to send all good and second-rate alike together, as in either case the lowest prices will be returned for the whole lot. The plants ought to be gone over frequently, all buds about half expanded cut and placed in pans of water in a very cool room till the time has arrived for packing. We favour the parcel post for smaller consignments, heavier lots being sent by rail. Prior to packing the buds are sorted over, so many being classed as first, and the rest as second quality, these being duly noted down on the invoice accompanying each box. We use a variety of boxes according to circumstances, but none of them is deep, two layers of blooms being as many as ought to go in one package. The bottom of each is thinly covered with fresh clean moss, and on this the heaviest, and in most instances the best blooms are closely and flatly packed. In comparatively cool weather a strip of moderately stout paper in all that is needed to divide the bottom from the top layer of blooms, but in the summer common Fern fronds or Spinach leaves on the top of each layer serve to keep all cooler and fresher; finish off with more paper, and then sufficient moss or cotton wool to rather more than fill the box. The lid ought always to close down lightly, as should it not do so the rough usage the packages invariably experience must result in great damage to the contents.

Maréchal Niel still realises the best prices, the great demand for these evidently not being on the wane. Very frequently 6s. per dozen (wholesale) can be obtained for the best blooms, not necessarily at the beginning of the season, and that too in small provincial towns, and they rarely fetch less than 4s. per dozen. The second quality blooms range from 3s. 6d. per dozen to 2s., but healthy plants produce but few poor blooms. In this neighbourhood a plant covering the roof of a small span-roofed house annually produces a crop valued at not less than £25, the owner, it must be added, retaining a considerable number of the blooms. The next best in point of value are good blooms of *Lamarque*, *The Bride*, and *Niphetos*, there being always a demand for white Roses. For these we sometimes get as much as 6s. per dozen, but more often than not we have to be content with 3s. 6d. for the best quality, and 2s. for the rest. *Catherine Mermet* if well grown produces extra fine blooms, and for these 6d. each can be had, but 3s. per dozen is perhaps the average. Yellow Roses are far more popular than those of a pink shade, and sometimes realise slightly better prices; but whatever may be the retail price we seldom get more than 3s. 6d. for either *Isabella Sprunt*, *Madame Falcot*, *Etoile de Lyon*, *Comtesse de Nadaillac*, and other varieties I have previously named. Buds only of *Safrano* and *W. A. Richardson* are of value, but as the former especially is imported in such large quantities the price at first or at the present time is 2s. 6d. per dozen, and later on 1s. 6d.; even at this price we find the former very profitable, a strong roof plant being apparently inexhaustible.—M. H.

PLANT FOOD.

It was remarked in a previous communication that inside borders and pot-grown plants were absolutely under the control of cultivators, and manures could consequently be applied without any disturbing elements interfering with their efficacy. Another remark was made to the effect that much more manure could be advantageously applied in both cases than is generally considered necessary. It may be of interest to amplify these remarks in the present article; and taking borders first, it has to be noted that well fed trees, Vines, Peaches, &c., under otherwise fair treatment,

develop foliage which is less subject to the attacks of insects than is that of underfed trees. Another peculiarity of the foliage is its staying capacity. The absence of insect pests has of course a bearing on this point, but that does not quite explain the fact of the foliage continuing of a deep green until the end of the season without passing a brownish green stage before change of colour and final detachment.

The bearing such foliage has on the next year's crop can only be beneficial, resulting, as it does, in full buds and on a longer continued storage of sap. The amount of feeding required by fruit trees is greater than is, perhaps, generally admitted, for the further reason that the crop they bear is of the most exhausting nature. Flowers are an exhausting crop, but they are a comparatively small affair when considered alongside the production not only of flowers but of fruit and seeds; and if we examine the period when food is of the utmost importance to fruit trees we find it is between the period of the fruit setting and the cessation of growth; and further, that the food required is very much of a mineral nature, or at least a nature which sends us to mineral agents for a supply. During the season of rest, though it is not exactly known what is going on in the plant economy, it is certain some change takes place, and that towards the development of flowers. But one thing we do know, and that is that the quantity of sap taken up by the roots is of the slightest, and that at this stage manures are of no use. We know, further, that the application of manures during the season of rest to plants which have been starved has no effect on the quantity or quality of the flowers which follow in due course. So that we arrive at this point, that the time the tree requires food to forward the fruit begins about the flowering stage, and that simultaneously the food required for the next season's young foliage, early growth, and flowers must also be applied and continued as long as necessary.

The old-fashioned practice of manuring only at the winter season will be seen to have been erroneous in principle, and the result necessarily was that the best managed Vines, except in cases where the soil was naturally fertile, gave up after a few years' regular cropping, and older Vines simply took a rest every second year, unless the crops were kept very small indeed. It is now well understood that potash is a very essential element in all fruit manure, and along with phosphoric acid is the chief ingredient in the ash of all parts of the plant, but particularly of the flowers and seeds. At the same time it is to be remembered that the ash of plants amounts to very seldom more than 3 per cent. of the organic portions, and most often less than that, so that the amount required is really very small. But in practice it is necessary to apply more than the bare amount required to supply these small wants. And the phosphatic element has so important a bearing on the general health of the plant on account of the action which phosphates exert on the formation of roots, that we may apply these in good quantities without giving too much. Then, as potassic manures are only slowly soluble, it is important to let them lie in the soil for a good while before the plants require them. On that account a sprinkling of potassium chloride should be applied to borders during winter, and at the same time a small supply of lime, preferably in the form of lime water, should also be applied, and also about a quarter of a pound to the square yard of superphosphate, or double that quantity of slag phosphate, which is a slower acting agent than the other. If the border has been supplied with $1\frac{1}{2}$ inch of water before the application of these, and a slight sprinkling of soil afterwards with a dressing of cow manure above all, no more water will be required for several weeks, or most likely until root action begins, when another application of water will bring the phosphates into action. Thereafter, a dressing of superphosphate three parts and sulphate of ammonia one part, applied directly after each watering, enough to "pepper" the soil, will do wonders, especially in the case of aged Vines. Rather less may be given to Peaches. Plants stop extracting food in any quantity from the soil when the seed approaches its final stage of development, consequently when the fruit begins to colour feeding may be stopped. Abundance of water is absolutely essential, otherwise mischief will follow.

Dealing now with pot plants, we have to consider that foliage in many cases is all that is required of the plant, and in most others flowers. The plant is often short-lived, and the soil in which it is grown is increased as a rule according to the exigencies of the plant. For such plants no potassic manure is required, but superphosphatic is most important, and should always be employed as a surface dressing. Its action is greatly stimulated by an occasional dressing of a nitrate. But it is one of the greatest fallacies in plant culture to depend on a nitrogenous agent solely, as growers of Chrysanthemums have been doing. More than is absolutely necessary of either lime, potash, or phosphates has no evil effect on plants. What they do not use does no harm; but an excess of the nitrogenous agent is injurious. Manures should be applied after

watering, and the superphosphate should be sprinkled evenly over the surface of the soil, so that the roots may find it the more easily. They should be applied regularly from the beginning of the young plant's existence, leaving off at times of repotting until fresh roots are formed. They have a good effect in colouring Crotons and other plants, and in giving quality and colour to flowers—B.

(To be continued.)

CARNATION SOUVENIR DE LA MALMAISON.

CARNATIONS have become exceedingly popular during the past two seasons, and they have now to be grown in quantity where previously a few specimens were equal to the demand. No doubt they will also find their way into most gardens where choice flowers are appreciated, but where at present their owners are as yet unacquainted with these, the aristocrats of the Carnation family. I well remember the first time I saw a plant of the Souvenir de la Malmaison. It must be a quarter of a century ago, when making a little tour among gardens in early summer, I found in one of those visited a large plant trained to a balloon-shaped trellis with shoots and flowers tied down in the old-fashioned style. That plant is the one thing I remember distinctly of all the others in the conservatory, and ever since I have had a liking for Malmaisons above most other flowers. My cultural experience has been much the same as that of most people—some failures, until the right track has been struck, and thereafter the road has been comparatively smooth and easy. I shall here indicate some of the points which render Malmaison culture uncertain. The initial one to beginners is that of securing a strong healthy stock to start with. I have had plants through my hands on several occasions which no amount of attention could induce to live. Close-jointed growth with foliage to the soil and plenty of roots in the latter is needed to make a start with.

A pest which inexperienced growers often allow to work irreparable mischief before noticing anything wrong is found in a wingless aphid. This insect feeds, out of sight at first, on the young foliage, and if allowed to go on without check it simply necessitates either the cutting back of all the growth infested, so destroying the season's bloom, or it may even destroy plants otherwise not in the best of health. The only certain method of escape is to dust the young growing points with tobacco powder, repeating the application at regular intervals. Many plants are destroyed by a rust or fungoid growth which attacks the foliage. Whenever a collection is attacked the greatest watchfulness is necessary and every bit of affected leaf must be destroyed. This is a very common means of failure with Malmaisons. I should be very glad to hear of some simple and efficient method of clearing unhealthy stock of this virulent parasite.

As the last point to be noted in order to keep a healthy stock, I think it is a mistaken policy to grow other than young plants. If large plants are wanted they ought to be grown on without allowing them to flower until they have reached the size desired; and, though these should be three or four years of age, all the growth will be short with broad healthy foliage, and to all intents as young and strong as one-year-old plants. Those allowed to flower as they like become tall, the bare old stems unhealthy and unfitted to continue producing good blooms, and not uncommonly die right back. Aphid, rust, and old plants are, I think, most inimical to success, but in common with other Carnations they do not like a close warm atmosphere. Far better grow them in a cold frame than stifle them as is too often the case.

In direct cultural details there is nothing difficult to master. Propagation is effected either by means of cuttings or layers. The most common time to increase by the former method is in autumn, keeping the cuttings in a cool house through the winter, and potting in spring when well rooted. They also strike freely during summer if dibbled into a light soil in a perfectly shaded position, and protected with a bellglass until rooted. Layering may be effected at any season, but from February until the end of August the rooting process is much more rapid than at other times. Roots are formed in from ten days to a fortnight under the most favourable conditions, and as soon as a few roots are made the junction between the old plant and the layer should be severed. The shoots may either be layered into thumb pots, or into a thin bed of light open soil. In the latter case there is less risk of the young plants suffering from any neglect; though, with due attention, the pot layers are ready first. If growers have a sufficient stock to keep a few good plants to bloom throughout winter, these will be in good condition to layer now (the beginning of February). The way we do these is to sink the pots in the border of a late Peach house, then spread a layer, 2 inches thick, of leaf soil and sand on the surface of the border, laying the young growths therein. If always kept moist

roots are quickly formed, and by the beginning of March the rooted plants are ready for placing into 3-inch pots. Late layers made in the same way in October will be well rooted at the same time, or perhaps a few weeks earlier. These may either be grown without stopping, when they will flower in late autumn or winter, or the points may be taken out and three to six of the strongest growths left, which will furnish plants for flowering in early spring. Pots 7 to 8 inches diameter will be required for these.—N. B.

(To be continued.)

EMIGRATION OF GARDENERS.

(Continued from page 83.)

SIGHT-SEEING, like everything else, comes to an end, and so our friend went to work, carrying cotton bales seven days at 1½ dol. per day with the "darkies." Hard work on a sugar plantation, in the boiling houses, at 1 dol. 75 cents. per day for five weeks proved its unsuitability for the white man; consequently he sailed up the Mississippi to Memphis, walked forty miles along the bank, getting work on "levy"—*i.e.*, raising the banks of the Mississippi, to prevent inundations, at 2½ dols. per day without board. At the end of eight weeks he was seized with ague or malarial fever, and went into a hospital at St. Louis, paying 12 dols. per week for board and medical attendance. After eight weeks he was ordered north, therefore made for Chicago, and thence to New York. It is needless to say that the western fever and the malarial visitation made speedy end of the 500 dols. intended for a trip home. A precarious existence had to be maintained by picking up work in Long Island and New Jersey, finally drifting to Philadelphia, having to enter a hospital, receiving every medical attendance and the kindest care from sisters of mercy for months in-and-out; in the intervals working at odd jobs, chiefly among farmers, and only getting enough to make ends meet. This brings us to the end of August, 1889, when medical men advised a change to native air; no remedy so effectual, except Sir Walter Raleigh's headman's axe—"sharp medicine, a cure for all diseases." Baltimore was reached with scanty means, and in proof that no man can know too much, the experience of the sea, even oyster dredging, secured a passage home in the steamship "Baltimore," bound to Glasgow with a general cargo, including 743 head of cattle, the farming experience securing in addition to the working passage 10 dols. wherewith to land on native soil. After a very rough passage of fifteen days he landed at Glasgow, with clothes all spoiled and 10 dols. of the United States of America money to get a "rig out." The idea was to get work of any kind to subsist, and throw off the malarial effects of the Mississippi swamps, then to see the old folks at home, and return to America. This, good as it might be in inception, was not so easy of execution. In fact it failed, and we are glad, as it tends to confirm our conviction that the horticultural horse has been ridden too fast and too long in this country to last. Our friend tried Glasgow, the gardens of Edinburgh, and trudged along by way of Berwick, Newcastle, York, Peterborough, &c., to London, trying for work all along the route, and only had four days harvesting with a farmer near Hexham, and one day machine threshing near Ware, in each case at 2s. 6d. per day and drinking, which our friend declares to be the worst practice under the sun, the master taking advantage of the weakness of the men to get more work done than is paid for in cash.

Work was tried for all round London, then Birmingham, Dudley, Wolverhampton, Leeds, and Sheffield. A return was made to London. The missive came, "I should like to see you before I return to America, for I am heartily sick of England, convinced from what I have seen that the unemployed gardener and agricultural labourer can do better in America than here; the field is larger, and the opportunities greater. I think I am cured of the ague, and making Liverpool shall work my passage out and smuggle myself in, as pauper labour is not allowed to land by the United States Government; but that will hardly be necessary, as I have many friends there who will be pleased to welcome me back again." There is little more to tell, only of matters horticultural, which are reserved for another paper, something may be said. Suffice it to state that our friend sailed from Liverpool January 4th, 1890, in the Guion Line mail steamer "Wyoming" as a passenger.—UTILITARIAN.

TECOMA JASMINOIDES.

GREENHOUSE climbing plants are always in demand, and it is sometimes a source of difficulty to secure sufficient diversity in roof-covering occupants of this character. Few novelties are added to those suitable for the purpose, and we have to hark back amongst those introduced during the present century to find sufficient to make up a

good list. In some gardens the Tecomas, with their near relatives the Bignonias, are known and valued, but this is by no means generally the case—yet easily grown plants like these should not be neglected. *Tecoma jasminoides* is particularly worthy of a place, yet when it is exhibited, either in the metropolis or the provinces, it is comparatively new to the majority of the visitors who admire its elegant flowers and delicate colour. The flowers are produced freely, and vary from white with a rosy centre to a uniform pink hue, differing in the brightness of tint, and some of the best marked of these variations have received distinctive names.

The plant succeeds in a compost of turfy loam, peat, and sand, or



FIG. 13.—TECOMA JASMINOIDES.

good leaf soil can be substituted for the peat if more convenient. Planted out it grows freely, but it also succeeds in a pot, needing thorough drainage in any case.

CULTURE OF THE MUSCAT GRAPE.

(Continued from page 92.)

MUSCAT Grapes generally require careful cultivation and good light houses, so that they can obtain a large amount of heat from a natural source, as well as being supplied with sufficient means to obtain the same artificially. Lean-to houses with a south aspect I consider best, although good Muscats are grown in different style of houses and aspect. Muscat Hamburg, Madresfield Court, and the Frontignans might be grown well together. They will succeed with rather less heat than the Muscat of Alexandria.

In the arrangement of the hot-water pipes in vineries I strongly advocate the equal distribution of the pipes through the house. It was formerly the system to place them altogether along the front of the houses, and I have invariably observed that the bunches of Grapes

nearest the hot-water pipes set the best, so that if the pipes are distributed through the house a greater chance of obtaining a good set is the result. The soil I have found Grapes to succeed in best, and especially Muscats, is a good strong yellow loam, not the turf only, but dug 6 to 8 inches deep, according to the quality. The turf alone I consider not so good, as it is not so substantial, and does not produce such a substantial growth. Cultivators have not always the chance of obtaining the soil they would like, but have to use that nearest at hand. I have known instances where soil has been carted from a distance when that more suitable was close at hand. I like to have the borders composed of solid material, so that they will retain the food for the Vines if the borders are light and fibry. Much of the food supplied to the Vines passes away too quickly. A good proportion of brick and mortar rubbish is necessary to keep the soil open, and a good sprinkling of half-inch bones is a great advantage, as they act mechanically as well as producing food for the Vines.

In making the border I like to have the soil firm, having it rammed with wooden rammers. About 2 feet 6 inches depth of soil is ample, with about 6 inches of drainage. The border is about the width of the house if possible. Vines may succeed for some time in very narrow borders, but narrow borders are like small pots for large plants, and very liable to mismanagement. With regard to inside or outside borders, in a general way outside borders are preferred provided means can be had for keeping off the cold rains and snow. They are not so liable to be mismanaged, and do not require nearly so much labour as inside borders, for if they are well managed it is rare that they will require watering. The labour required to supply the wants of inside borders is very great, especially where the water is not conveniently situated. For early forcing inside borders are probably best, although I have seen excellent Grapes produced from Vines (chiefly Black Hamburgs and Frontignans) grown in outside borders, where the fruit was ripe the first week in April.

Outside borders I keep well mulched with good manure the greater portion of the year. After the Grapes are ripe the mulching is gradually removed, and the borders exposed to the weather until the approach of frost. If good manure is not to be had, or is objected to, I recommend a dressing (sufficient to colour the ground) of about equal portions of superphosphate of lime and guano, and in the case of old borders which have been annually mulched with manure a good dressing of quicklime would prove beneficial. As I do not consider it advisable to water outside borders, except under special circumstances, it is necessary that assistance be supplied the roots in the mulching and top-dressings to be washed in by the rain. In preparing a new border it is best to make it about a fourth part annually until the desired width is attained, but by no means should the roots be cramped for want of room in the early part of their existence.

Planting may be done in the spring or early autumn, the former preferred for inside borders, and the latter time for outside, as the soil would be much warmer than in spring, so that the roots would get started into the new soil previous to cold weather coming on, and the Vines would be enabled to start strongly in the spring through having a few established roots to commence with. When the Vines commence growing, give them every encouragement to make a strong substantial growth, with sufficient heat and air to enable the wood to become solid as it is made. The leader is stopped once or twice, and the laterals frequently, so as to concentrate the vigour in that part of the rod which will be left after pruning. If the Vines have made satisfactory progress the first season we leave from 4 to 6 feet of rod after pruning.

Cropping I consider requires as much forethought and consideration as any matter connected with the cultivation of the Vine; so many errors on this point, while all other matters connected with successful cultivation are scrupulously carried out. It is known that Vines, when well cultivated, produce more fruit than they can properly mature to give general satisfaction, and it goes much against the will of many cultivators to remove many fine bunches at thinning time, and to this matter I must plead guilty, but experience is better bought than taught, as it is more effectual. Young Vines should be cropped lightly until they become established. A great many are too anxious to procure a full crop before the Vines are capable of producing it, but it is not at all times the fault of the cultivator, for some owners of Vines are not very well pleased unless they can see what they call good crops, and dearly are they sometimes paid for. After much attention and close observation on the matter of cropping of Vines, I consider about a pound weight of Grapes to the square yard of roof covered taken from established Vines is a fair crop, and the cultivator when he is acquainted with the Vines can at the thinning time fairly estimate the number of bunches to leave,

although sometimes with vigorous Vines they may exceed one's expectations; but should they become over-weighted with fruit they will surely fail to properly mature them, however highly they may be fed, and bad finish with shanked berries will be the probable result.

SUMMER TREATMENT.—When the Vines are growing they should be encouraged, as previously stated, to make a substantial growth by admitting air upon all favourable occasions, and allowing plenty of light among the foliage by keeping the laterals thin, but we must be guided by the nature of the house the Vines are growing in. In houses which are constructed to admit the largest amount of light more growth may be allowed, but by no means should they become thickly crowded, especially in the case of Muscat of Alexandria, which requires abundance of light throughout its growing season, both for the fruit and wood, and if this is provided from the time of the berries setting, other things being satisfactory, they will not fail to finish well. I am no advocate for allowing a dense mass of foliage, recommended by some to encourage root action. All available space should be filled with foliage sufficiently thin to admit the sun between the leaves. The shoots are stopped the second leaf beyond the bunch, and rub out all laterals along the shoots as they appear, except one between the base of the shoot and the bunch to act as a kind of safety valve to prevent the base buds bursting. This and all subsequent laterals are closely stopped or rubbed out if there is any fear of too many leaves forming. This treatment induces the base buds to become better developed than they otherwise would do, and the foliage being no way crowded they are well matured, and invariably produce a good bunch the following season. A sharp look out is kept for the usual insects the Vines are subject to, for if they once obtain a footing they cause much trouble to prevent their injuring the foliage. A sprinkling of liquid manure about the house in the evening is effectual in keeping red spider in check, or a little placed into the evaporating troughs will also cause the foliage to assume a dark green colour, so much desired. I pay strict attention to the ventilation, not losing an opportunity of admitting air both at the top and the front of the house when favourable, and especially to avoid the houses becoming excessively hot before air is admitted.

Watering requires careful attention if the borders are entirely inside, and the cultivator must be guided by circumstances, but as much harm is done by giving too much water as too little. Vines growing in narrow shallow borders will of course require more frequent applications than those not so confined. The borders, if they are inside, are thoroughly soaked previously to starting the Vines, and in doing so use liquid manure tolerably strong, so as to furnish the soil with plenty of food for the roots to feed upon. With Vines started in February we usually find about six good waterings sufficient to bring the crop to maturity, given at intervals according to the state of the weather, using liquid manure alternately, but not so strong as it is applied in the winter time. The borders are well mulched with good fresh cow manure containing a fair proportion of straw. I also give the borders a sprinkling of lime once during the year. The manure is kept moist during the growing season by daily sprinkling with syringe. After the crop is cut the borders are well soaked with clear water, then a good watering of liquid manure follows. Outside borders, if kept well mulched with good manure during the growing season, are rarely watered. Muscat of Alexandria and Mrs. Pince's Muscat require a good temperature to grow in. We commence with a temperature of about 50° at night, 55° by day by artificial heat, with an additional 10° from sun heat, and gradually rising from 70° to 75° at night, and 80° to 85° by day from sun heat. I have never failed to obtain a good set when the above temperatures could be secured, and a good shaking of the Vines when in bloom to distribute the pollen.

The Frontignans, Madresfield Court, Muscat Hamburg, and Chasselas-Musqué do not require so high a temperature. The latter variety and Madresfield Court are apt to crack their berries unless carefully looked after as regards ventilation, but if freely ventilated and carefully exposed to the sun the risk of their cracking will be materially reduced. During the growing season, after the fruit is set as well as before, the Vines receive an occasional syringing to cleanse the foliage, which also assists in keeping away red spider, but I am careful that very clear water only is used. Water containing lime would not be suitable owing to its leaving a sediment upon the berries. Syringing the foliage should be performed carefully and early enough in the afternoon to allow the berries to dry quickly, otherwise they would be discoloured if the water remained upon them long, and the skin of the berries should become firm before using the syringe for the foliage; no evil then results from the practice. As the fruit approaches maturity syringing the foliage is discontinued.

Pruning.—After the foliage begins to assume the colour indicating maturity we commence shortening the laterals slightly, and as soon as the foliage is off finally prune, and in doing so invariably cut back to one bud from the base, as bunches sufficiently large for ordinary purposes can be procured from them. Vines in good condition will often produce bunches from 3 to 4 lbs. weight from the base buds, and invariably of a better shape than those from buds farther along the lateral.

After pruning the rods are well scrubbed, using a new brush and soapy water, removing previously any loose bark that may be hanging about merely for appearance sake, but by no means have the old bark removed unless it is beginning to leave the rods; the house then receives its annual cleaning as soon as convenient, and is ready when the time comes for another start.—W. SIMPSON.—(Read at a meeting of the Liverpool Horticultural Association.)



RELABELLING.

WHERE the houses devoted to orchids have been cleaned, as well as the plants, there will be time for preparing new labels. Those made of wood are almost useless for these plants, and require renewing every season. This entails more labour than can be spared in many establishments. The best method is to have stout galvanised wire supports, the wire being turned downwards at the top for about 1 inch and then upwards. On the end of the upright piece a zinc label with a hole through it, a little larger than the wire, is placed, and this rests at the bend where the wire is turned upwards. If closed after it is placed on with a hammer the label cannot come off. The label should be written before it is placed on the wire, and special notes can be made on the back. A solution of platinum must be employed in ink, which can be obtained from any chemist, and though rather dear a small quantity will suffice for a large number of labels. When obtained from a reliable source it will often fail to write on zinc, passing over it as if the label had been greasy. This is due to the solution being too strong, and if it is reduced by adding water the labels can be written clearly and without much trouble. A piece of hard wood finely pointed is better for writing on these labels with than a pen. Once those to whom the writing is entrusted are accustomed to use it. We never think of using a pen, which the solution quickly destroys.

BASKETS AND PANS.

It is a mistake to leave the preparation of these until plants are ready for being placed in them. The work of shifting the plants takes fully double the time that would be the case if the baskets and pans for suspending from the roof were supplied with wires ready for use. Copper wire is the best for this purpose, of a stoutness that will not bend and dangle about when the basket or pan is lifted down for watering. A hook at the top is better to hang them up by than a loop, but the latter can be made more easily than the former. The most important matter to be taken into consideration is to suspend them in such a manner that they can be taken down quickly, and as many as possible, without the use of steps. Plants that are suspended out of reach are very liable to be neglected, and suffer in consequence, either from too much or too little water, and not unfrequently from insects, before it is discovered that they have been attacked.

Suspend all plants as far as possible where the aid of steps can be dispensed with. Where quantities have to be overlooked daily and steps are a necessity, the amount of labour in watering is increased materially. This should be kept in mind when baskets and pans are being wired ready for use.

BLOCKS.

These are suitable for many Orchids, and when properly treated they do well upon them. We have found that the small thin pieces of wood so generally used dry too quickly for the well-being of the plants. These should be avoided as much as possible, for when the plants are once established upon them it is difficult to take them off and place them on larger ones. The only practicable course is to secure the one to the other. The size and growth of plants must be taken fully into consideration when placing them on blocks; for instance, some of the *Oncidiums*, unless they are large pieces, will do on small blocks for many years, in fact, until the wood is sufficiently decayed to be picked and washed from the

roots. A number of blocks of various sizes should be prepared ready for use. Almost any wood will do, but we prefer that of a moderately hard nature, so that they will last as long as possible. Branches of various sizes are selected for this purpose, and if they will allow of it are split in two; if not, they are made flat on one side, as a flat surface is more convenient on which to secure the plants than a round one. Sharp angles are also removed. The bark should be removed, because it quickly commences to decay and part from the wood, and soon proves a splendid harbour for woodlice and other pests, if there are any about, and have the least chance of getting to the plants. After the blocks are prepared they should be thoroughly charred, which adds to their preservation, and probably assists the plant in its growth by absorbing the ammonia from the atmosphere.—ORCHID GROWER.

ORCHIDS IN FLOWER.

THE following Orchids are flowering in Messrs. John Laing and Sons' nurseries at Forest Hill, S.E.:—*Cœlogynis cristata*, Chatsworth var., and *alba* (*Lololeuca*); *Calanthes vestita* and *rubra*; *Cattleyas chocoensis*, *Percivaliana*, and *Trianae delicata*; *Cypripedium callosum*, *Harrisianum*, and *insigne sylhetense*; *Dendrobium crassinode Barberianum*, *fimbriatum*, *Jamesianum*, *nobile*, *pendula*, *Pierardi*, *Wardianum*, and *splendens*; *Lælia harpophylla*, *Lycaste Skinneri*, and *superba*; *Masdevallias Harryana*, *ignea*, *Lindeni*, *polysticta*, *tovarensis*; *Odontoglossums*, *Alexandrae*, *aspersum*, *Cervantesi*, *Oerstedii*, *pulchellum majus*, and *Rossi majus*; *Oncidiums barbatum*, *cucullatum*, *Forbesii*, *ornithorhynchum*, *reflexum*, *splendidum*, and *varicosum*; *Phaius grandifolius*, *Pilumna fragrans*, *Polystachya pubescens*, and *Zygotepalum Mackayi*.

ORCHIDS AT HEATHFIELD HOUSE.

THE readers of the *Journal of Horticulture* will be glad to know that the extensive range of glass houses at Heathfield House, Low Fell, Gateshead, late under the management of Mr. A. Methven, and now under Mr. J. Wood, late foreman in the gardens of Sir Chas. Tennant, The Glen, Peebleshire, have not lost their prestige or interest in the horticultural world. Just now a plant is flowering of *Odontoglossum grande* with three stems in a 6-inch pot, two with six flowers each, and one with four, the flowers averaging 6 inches across. This plant at the time of my visit was flowering in the cool *Odontoglossum* house. The enclosed photograph will give some idea of the plant and the imposing appearance it had. *Odontoglossum cirrhosum* is bearing a fine seed pod.—S. S.

[The photograph sent represents a well flowered plant of *Odontoglossum grande*.]

APRICOTS.

I NOTICE a correspondent, "C. H.," asks those who have been successful in Apricot culture to give the method they adopt to secure a crop, or in words to that effect, and this in the midland counties. I will try to show "C. H." the way I made the culture of Apricots a success in what may safely be termed one of the worst localities to grow them, or, in fact, any hardy fruit. The garden was in a veritable bog, with a lake each side and a couple of streams of water passing through the grounds.

Although Apricots had been grown fairly well in this garden many years ago, there was not a tree worthy of the name when I took charge, in the summer of 1878. Yet Apricots were much wanted, and had to be bought. I have many times paid cottagers 4s. and 6s. per dozen for fruit. But the purchase of fruit was not in accordance with economy, which was most rigidly practised during my eleven years' stay in this garden. Therefore I asked permission to try my hand. The reply was, "I should much like you to 'try,' but I do not think you will succeed." However I did try, and succeeded too.

The first thing done was to select a good wall facing south-east long enough to hold a dozen full grown trees. A few old Pear trees were removed, the soil taken out and spread over the border, which had become too light in consequence of overdressing with manure. This was prepared for the reception of the Apricots in the following manner. The soil was removed to the depth of 3 feet, and 4 feet wide; the bottom was covered with 6 inches of chalk, well rammed and trodden down, then ordinary agricultural drain pipes were placed very carefully over the chalk with a good fall towards a main drain in the garden walk. At 4 feet apart, between the pipes, was put as much brick rubbish as was thought necessary to carry off the water. A good layer of fresh cut loam, grass side downwards, was next supplied. Then we mixed a quantity of loam that had been stacked for six months with equal portions of charred refuse and bricklayers' refuse. In this the trees were duly planted and nailed to the wall, the roots being covered with long stable litter. There was no pruning, but

the shoots were laid in their full length. The only protection used to ward off spring frost was a few laurel boughs, just at the most critical period when the flowers expanded.

The result is that these Apricots are well worth looking at, and last year the crop was splendid. As soon as it was seen that these showed signs of "doing well" I was allowed to proceed to renovate and replant the Plums against the walls. Peaches and Pears, and even the Vines, were all lifted and replanted with similar results. I have permission to visit this place though I have been some months away from it, and if the editor will accept them I will give the readers of the Journal a few notes about the place in general.—
A PRACTICAL MAN.

[We shall be glad to have the notes referred to by our correspondent.]

BOUVARDIAS.

FEW flowers are more pleasing than the best Bouvardias, and few more easy to grow, a happy condition which is found to accompany both the beautiful and the useful in the case of so many flowers. Some plants we may have too many of and their flowers be lost, but the Bouvardia is not one of these, for either in pots or for various purposes when cut it is never unwelcome or despised. Bouvardias are of easy increase, which is effected either by cuttings made of the tips of growing shoots in spring or by pieces of the root cut up and started into growth. The latter is, I think, the method by which the best results are obtained. The roots can be taken any time from February till April, strong roots yielding the stronger growths. These need not be cut up into over-small pieces, as a root which starts two or three buds naturally makes a much better plant than those which start one growth only. The simplest mode of culture, and the best one, moreover, never allows the plants to be potted until they are wanted for flowering. For starting the roots ordinary cutting boxes are prepared by half filling them with light open material, nothing being better for the purpose than light flaky leaf soil. On this the roots are spread thinly and merely covered with the same material, the whole being finished with a layer of moss, which is effective in keeping the soil in an equally moist condition with a minimum amount of watering. A little bottom heat is of service in starting growth, and this is secured by placing the boxes either on or over the pipes in a vinery or other forcing house. When growth is well started the moss is removed and the plants have a better growing position. If placed in early in spring the plants will require shifting into other boxes, but if late they may be left until ready to plant out. Essential at this period are plenty of light, a good temperature, and an unremitting attention to pinching. If these points are attended to the plants will make rapid growth, which will be thickened by the continued pinching, and dormant buds will throw up from the root and further add to the size and strength of the plants.

By the middle or end of May they can be transplanted without danger into cold frames, which for some time will be better kept close and slightly shaded, but as summer progresses the sashes will be much better dispensed with. Pinching must be continued, and it will be found a good practice to remove altogether all growths which are weakly, as these are really not of the slightest use either to the plant or to the cultivator, a less number of strong growths being of much greater value than any number of weak ones. If wanted to bloom early pinching must not be continued too late, indeed the beginning of September should see this discontinued for all the stock. At this time, too, it is necessary to partially raise the plant, choosing dull weather to do so, and if a few hot days follow, rather shade closely than water the soil, as the plants will be more benefited in one way than another, the wood made firmer, the young roots less watery, and the flower buds more regularly set.

By the third week of September the plants must be transferred to pots, the size needful to employ much depending on the nature of the compost in which the plants had passed the summer. If good plain loam smaller pots would do than were a light open compost used. Any way, the pots should not be so large as to have the roots away from their sides, a pot packed full of roots in a few weeks being the object to aim at, and the fresh soil over the drainage and on the surface will be sufficient to carry the plants through their flowering season with the aid of a few dressings of manure. When potted place them in a sheltered corner out of doors until the second week of October, then get them into an airy pit where they can be kept growing, and where they will develop flowers rapidly. An average temperature of 50° to 55° suits them well until December is reached, when if it is intended to keep the same plants flowering they must have a stove heat in order to induce fresh breaks and to bring forward the trusses.

However, it is perhaps the better plan to dry the plants about the new year, keeping them cool, though not cold and dry.

The second year the growths must be cut well back in the same way as Fuchsias and allowed to start in much the same way. They may also require to be shaken out and repotted, and will make good plants either placed out in the same way as advised above, or the pots may be plunged and water supplied freely, when the plants will come in useful early in the season, and continue in bloom for a very long period. Bouvardias, it must be understood, have no antipathy to the knife of the flower gatherer, but the more trusses there are cut the more they are prepared to contribute, until the dimmed light of the winter season puts a stop to this characteristic. We grow only a very few sorts and may cultivate still fewer in the future. The best singles appear to be Hogarthi and Vreelandi, respectively red and white, but of far greater value is the now old double white sort Alfred Neuner. Strong growths alone allowed to remain and perfect bloom places the trusses of this much in advance of others, and if extra fine examples are particularly wanted a little trimming out of the pips when in bud will yield good results. Green fly should be kept off the plants, as they prove fatal to the undeveloped trusses, rendering these quite worthless if allowed to gain a footing.—A SCOTCH GARDENER.



EVENTS OF THE WEEK.—The Royal Society meets to-day (Thursday) at 4.30 P.M. The Royal Botanic Society has a meeting on Saturday at 3.45 P.M., and the Royal Geographical Society at 8.30 P.M. on Monday. The chief horticultural event of the week will, however, be the Royal Horticultural Society's gathering on Tuesday, February 11th, when the Fruit, Floral, and Orchid Committees will assemble at 12 P.M., and the annual general meeting of Fellows will take place at 3 P.M.

— THE WEATHER IN THE METROPOLITAN DISTRICT has again been extremely variable during the past week. It has, however, been generally mild for the time of year, with slight frosts on two or three mornings; rather dense fogs have prevailed in the earlier part of several days, followed by clear bright weather.

— GARDENERS' ORPHAN FUND.—At the monthly meeting of the Committee, held on Friday night last, Mr. G. Deal in the chair, the following special receipts were announced:—From a concert at Workop, £56 4s. From Chrysanthemum Shows at Reigate, £50; Edinburgh, £5; and Market Harborough, £1 1s. From money boxes—Mr. Cannell, Swanley, £1; Mr. Herbst, Richmond, £1 2s.; Mr. Vallance, Bristol, £1 11s. 6d.; Mr. Hughes, Birmingham, £5 8s.; Mr. Dodds, Herringswell, Mildenhall, Suffolk, 5s. 8d.; Mr. Tubb, Minley Gardens, Farnboro', £1 5s. 1d.; total, £10 12s. 3d.; making an aggregate amount during the month of £122 7s. 3d. A vote of condolence on the death of Mr. Wildsmith, who was a good supporter of the Fund, was directed to be entered on the minutes and sent to Mrs. Wildsmith.

— WILL some of your correspondents kindly tell me what is best to plant on the BACK WALL OF A LEAN-TO VINERY? The wall is about 16 feet high. I have Camellias planted there, but the flowers flag and will not stand when cut. I am afraid the heat is too much, for I start the house on the 1st of January. I should like to grow Tomatoes, but I am afraid the Vines would shade them too much.—M. G. D.

— IMPROVED BLACKBERRIES.—Your correspondent "Rubus," page 61, has spoken very favourably of the Parsley-leaved Bramble, and I, for one, can endorse all that he has said in its favour. It is a vigorous grower, a prolific bearer of large fruit, which have a brisk flavour. When we purchased our stock of *Rubus laciniatus*, at the same time we purchased an equal quantity of the American variety called Wilson Junior. The latter has died out, seeming to have a weak and puny habit, and not at all suited for our part of the country, although Blackberries of the common English varieties are plentiful and very fine hereabouts; and as an instance of how vigorously they grow, one of our men in digging round the edge of a Rhododendron bed near a spring in the pleasure grounds, called my attention to a shoot a Bramble

had made during 1889; it was 3 feet long, and as thick as a man's thumb at the lower end.—R. MAHER, *Yattendon Court Gardens, Newbury.*

— GARDENING APPOINTMENTS.—Mr. H. Dunkin, for some years foreman at Longford Castle Gardens, has been appointed gardener to J. Harris Sanders, Esq., Porters Park, Barnet; and Mr. T. Vagg has been engaged as gardener to J. Theobald, Esq., M.P., The Bedfords, Havering-atte-Bower, Essex.

— USEFUL PLANTS.—The "Kew Bulletin" for February is devoted to letters and articles upon "The Manufacture of Quinine in India," "Maqui Berries for Colouring Wine," the berries named being the produce of *Aristotelia Maqui*. The other subjects dealt with are "Vine Culture in Texas," "Phylloxera in Victoria," "Botanical Exploration in Cuba," and "The Sugar Production of the World."

— A CORRECTION.—The difference between the statement in the couplet quoted by Mr. Arnott as to the flowering of Snowdrops and the actual time when they flower is not to be accounted for by my suggestion of the difference between the falling of Candlemas Day under the old and new style, the effect of which is exactly the reverse of what I stated (as I have since remembered), and only makes the difference the more glaring. How I made the blunder I do not know, except that *humanum est errare*, and that I wanted to find a reason for the old lines.—FRANCIS STERRY.

— THE SPHINCTER GRIP ARMoured HOSE COMPANY.—We are desired to mention that the following awards have been made to the armoured hose of this Company:—A bronze medal (the highest award for hose exhibit) at the Brighton and Hove International Exhibition; also the first prize and medal at the Paris Exhibition, 1889; first prize (silver medal) at the Birmingham Electrical and Industrial Exhibition, 1889; certificate of merit and special mention at the American Exhibition, London, 1887. The Company have added five new patented improvements to their machinery since they first placed this hose on the market. The hose is now in extensive use in private gardens, government and public establishments in this country and the colonies.

— THE HAYWARDS HEATH HORTICULTURAL SOCIETY.—Judging by the attendance of members at the first annual meeting, and the interest that was manifested in the proceedings, this young Society bids fair to have a stimulating effect on horticulture as practised by gardeners and amateurs in Mid-Sussex. The balance sheet showed that the receipts during the past year amounted to £196, and as the expenditure was £155 10s., the substantial sum of £41 2s. remained in favour of the Society. This is a very good beginning, and a favourable augury of future prosperity. Mr. S. Cooper is the President, and Mr. A. Willmot the Honorary Secretary of the Society.

— THE RAINFALL AT CUCKFIELD, MID-SUSSEX, for January was 2.33 inches, being 0.40 inch over the average. The heaviest fall was 0.45 inch on the 28th, rain falling on twenty-five days. Highest temperature, 54° on the 7th; lowest, 27° on 1st and 13th. Mean day temperature, 47.2°; mean night ditto, 36.1°. Mean temperature, 41.6°, 3° above the average. Remarkable mild month, thermometer only falling on four occasions below freezing point.—R. INGLIS.

— I SEND the following particulars of WEATHER OBSERVATIONS taken through last month, thinking they would be of some service for the Journal. Rain fell upon nineteen days; the largest amount fell in one day, being 0.33 inch; the smallest, 0.01 inch; total for the month, 2.22 inches, that being 1.34 inch more than January, 1889. The month on the whole was very mild and sunless, the temperature on eighteen days being above 45°, whilst on some days it reached as high as 50°. There was an almost total absence of frost, the sharpest being 13° on the 1st, and 6° on the 3rd, 21st, and 30th, the only frosts of any note.—E. WALLIS, *Buntingford.*

— A WELL attended meeting of the READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION was held at the usual place on Monday last. Mr. William Lees presided. The subject foremost in the minds of the members was the death of Mr. Wildsmith of Heckfield. The Chairman made a graceful reference to this distinguished gardener, by whose death the Association would be the poorer, and British gardeners would feel that one of the best had been removed from their ranks. The members unanimously resolved that a wreath be sent from the Association, and several members were appointed as a deputation to attend the funeral. The Secretary was requested to write a letter of condolence to Mrs. Wildsmith. The subject for discussion was "Prevailing Difficulties with Certain Plants," introduced by Mr.

Jas. Martin. A magnificent specimen of *Cœlogync cristata* was exhibited by Mr. W. Baskett, gardener to the President. The plant was 3 feet in diameter, and carrying nearly 300 flowers.

— A GARDENERS' MUTUAL IMPROVEMENT SOCIETY FOR CROYDON.—A meeting was held last week in the Old School of Art Room of the Public Hall for the purpose of inaugurating the above Society. Both amateurs and gardeners were represented. Mr. T. Wickham Jones was appointed to the chair, and briefly explained the objects of the meeting, which was to afford an opportunity for the interchange of ideas between nurserymen and amateurs in reference to horticultural matters. It was the outcome of a suggestion made by Mr. Bishop at the close of the last annual meeting of the Horticultural Society. A few of them had put their heads together and drawn up rules, which would be submitted, but the first thing would be for the meeting to decide whether it was desirable it should be formed. After a little discussion it was moved by Mr. Bishop, seconded by Mr. Butcher, and resolved unanimously, that there was room for such a society in Croydon, and that it should be formed, and called the "Croydon Gardeners' and Amateurs' Mutual Improvement Society." The rules were then submitted, which set forth that the Association should be instituted for the promotion and practice of the science of horticulture by holding periodical meetings, at which essays and papers should be read, and discussions introduced on all subjects connected therewith, and that a small library be formed for the information of the members. The members to consist of nurserymen, seedsmen, professional and amateur gardeners. Ordinary members' subscriptions to be 2s. 6d. per annum, and hon. members not less than 5s. The Society to be constituted by President, Vice-Presidents, Secretary, and a Committee of not less than twelve, six to form a quorum. Various other rules were passed in reference to the general management of the Club, and names were suggested for the offices of President, Vice-President, and Committee. The necessary arrangements for the first meeting were left in the hands of the Committee. Mr. S. Baxter, who had kindly undertaken the secretarial duties in connection with the preliminary meeting, was unanimously asked to continue in that office, which he accepted.

THE DEATH OF MR. WILDSMITH OF HECKFIELD GARDENS.

By the death of Mr. William Wildsmith British horticulture loses one of its most practical exponents. Not only was he one of the best all-round gardeners of the generation in which he lived and worked so well, but in all respects one of the worthiest of men. His mental and physical activity was remarkable, and no one was more ready than he to join in the furtherance of any good work. He was a member of the Fruit Committee of the Royal Horticultural Society, and a good and sound writer on gardening. He was, we think, a native of Yorkshire, and was raised from foreman to head gardener at Heckfield, as the successor of Mr. G. Tillyard. As some of his neighbours have referred to the death of this able gardener and good man we need say no more than that we mourn his loss, and tender to his widow deep sympathy in her bereavement. The funeral took place on February 4th in Heckfield Churchyard in the presence of over 200 spectators. Many beautiful wreaths were sent from friends. Noticeable amongst them were those from the Hon. Miss Shaw Lefevre; Messrs. Sutton & Sons; the Reading Gardeners' Association; the Birmingham Gardeners' Association; Mr. Lees, The Wilderness, Reading; Mr. W. J. Palmer, Reading; Mr. Turton, Maiden Erlegh; Mrs. Stanton, Park Place, Henley-on-Thames; Mrs. Crump, Madresfield Court; Mr. J. Allen, Swallowfield Park; Mr. A. Dean, Bedford; Mr. E. Molyneux, Swanmore Park; Mr. Rose, Lockinge Gardens; Mr. Trinder, Dogmersfield Park; Mr. G. Profit; and Mr. Tubb, Minley; one being sent also by Mr. J. Clayton, Grimston Gardens, Tadcaster, and Mr. J. Crook, Forde Abbey, Chard. Beside those persons represented as above, there were present Mr. Coleman, Eastnor Castle; Mr. Jones, Elvetham Park; Mr. Bell, Strathfieldsaye; Mr. Davidson, Highfield; Mr. Bowerman, Hackwood Park; Mr. Kneller, Malshanger Park; Mr. J. Martin (Messrs. Suttons); Mr. Robert Few; Mr. Legg, Bearwood; Mr. J. Pound, jun., Reading; Mr. S. Weaver, Oakley Park; Mr. Coombes, Ingfield; Mr. Heath, Hamp-ton-in-Arden, Birmingham; and Mr. Baskett, Reading.

It is being proposed, as a fitting tribute to the memory of one who took such a deep interest in the Gardeners' Orphan Fund, to raise a fund to be called "The Wildsmith Memorial Fund," with the object of placing a child on the Fund, such child to be known as the Wildsmith Memorial Orphan. As a preliminary the Committee of the Reading Gardeners' Association have undertaken the matter with a view to making the necessary arrangements.

Although not definitely settled, we understand the late Mr. Wildsmith will probably be succeeded by his foreman, Mr. H. Maxim, who has been in that capacity three years.

WITH very great regret we have to record the death of Mr. Wildsmith, the well-known gardener at Heckfield Place, Hants. He was

taken ill on Friday, the 19th January, which turned to congestion of the lungs and gastric fever, and to which he succumbed on Wednesday, January 29th, at the age of fifty-two. It may not be generally known that Mr. Wildsmith had been gardener at Heckfield Place for twenty-four years, and he has survived by only thirteen months his noble employer (Lord Eversley), whom he loved so well and served so faithfully. For a number of years Mr. Wildsmith was well known as a most successful exhibitor, but owing to an unfortunate accident of a few years ago, which impaired his health, he has latterly discontinued exhibiting.

As a horticulturist and gardener Mr. Wildsmith is too well known to need comment. As a gardener he had few equals and no superiors, for whatever he took in hand, whether flower gardening, fruit growing, vegetable culture, or Chrysanthemum growing, he was sure to do well. For years he was the winner of many very valuable prizes at the leading shows in the country, including the only gold cup ever offered for Chrysanthemums. Some of our most successful gardeners were foremen under Mr. Wildsmith, among whom may be mentioned Mr. Goodaere of Elvaston Castle, Mr. Crump of Madresfield Court, Mr. Turton of Maiden Erleigh, and Mr. Heath of Hampton Manor. Mr. Wildsmith's kindness and liberality were proverbial among his friends, who will long mourn his loss.—G. TRINDER, *Dogmersfield, Winchester.*

THROUGH the death of Mr. Wildsmith the horticultural world has lost one of its best supporters. Some years since, when returning home from an autumn exhibition at the Crystal Palace, he had the misfortune to meet with an accident by the overturning of his cart; since then he has experienced indifferent health. Mr. Wildsmith was one of our best Press contributors, having a high practical knowledge of the subjects he wrote about, he was able to convey his ideas to others in a clear manner. Besides this he was a capital judge of horticultural produce, especially in fruit and vegetables, taking as much interest in a small cottage show as in an exhibition of greater note, and was at all times willing to help struggling societies, often refusing to take a fee. Mr. Wildsmith was a man who was always ready to give advice truthfully, and on many occasions I have benefited by his kindness in this respect. As an exhibitor of Chrysanthemums he had secured the honour of winning the only gold cup ever offered for these flowers—that at Devizes some three or four years since. It was only during the last six years that he commenced growing these plants for exhibition purposes, but he was enabled to command success almost at first. I am afraid these few lines are but a poor attempt at expressing my feelings for the loss of one who was of such a kindly disposition, always ready to help others when the necessity arose, either in advice or otherwise. His welcome to visitors to Heckfield was always of the heartiest.—EDWIN MOLYNEUX.

In the course of a letter from Mr. E. Butts, who knew Mr. Wildsmith well, he says, "Flower gardening was considered Mr. Wildsmith's strong point, but I consider all his points were strong as a gardener, and I know that during his long period of service at Heckfield he converted a good number of raw articles into first-rate gardeners."



DISCUSSION AT SHEFFIELD.

BLOOMS DAMPING.

(Continued from page 73.)

THE next subject, the Chairman said, was the "Damping of Blooms," by Mr. Udale, who as an experienced grower, was quite competent to give information on the subject. Mr. Tunnington was to have opened the discussion, but he was rather unwell, and could not attend. Mr. Udale said it was a very debatable subject, and he was sorry Mr. Tunnington was not there. The question of the damping of Chrysanthemum blooms was certainly a very important one. Most exhibitors have been surprised and considerably annoyed at times to see their blooms damping. It may be that some florets here and there are the first to be noticed, and there are certain varieties which appear to be more liable to it than others, such as those with soft florets. One of the worst is Jeanne d'Arc. Another variety much subject to damping is Lady Hardinge, and the sport from it Mrs. Shipman. "What is the cause of damping? Possibly a combination of circumstances. Some say that it is through grossness, that plants have been over-fed. It is just within the range of probability that over-feeding may indirectly be the cause of damping. I am inclined to think that the fundamental cause of damping is the fear of using a little artificial heat. I should say the least of evils, rather than have good blooms spoiled by damp, is to turn on the heat. Damp frequently arises from a fall in the night temperature. Moisture is immediately precipitated on the florets, as the surface is colder than the surrounding atmosphere, and that I think is the chief reason. I must tell you frankly that in every case of neglect or fear of turning

on the heat, or both combined, I have had damping, but I find that when I have had a warm and buoyant atmosphere I have had no damping at all. There is still an advantage in having a little artificial heat because I think the flowers are harder and of much better quality. My best flowers have always been cut from the plants that I have applied heat to night and day. It may be asked, How is it they "go" from the centre? I do not think that of itself would affect the argument I have just adduced. I believe the damp has entered into the hearts of the flowers before we knew it was there, and being there it is more difficult to dry even if we turn on artificial heat. Damping is more frequently produced by want of a buoyant atmosphere rather than by too gross feeding."

Referring to Mr. Udale's statement about Mrs. Shipman, Mr. Harrison said he was thinking what a good keeper Mrs. Shipman was. Three weeks ago he had a flower fully grown, and put it in an old hen house where water ran down the walls. He had been able to keep that bloom until three days ago. He would not have had an Avalanche if he had not have put a flower of that variety in the same place. A flower of Golden Beverley was fully grown a month since; it was cut and kept during that time, then exhibited. He partly attributed his success to putting buckets of fresh lime frequently into the place and thus absorbing the moisture. The place was constantly shut up close and dark. He found that damp appeared chiefly when the sun came out. He had always kept fire heat on the houses, but found most harm done by an hour or two of sun.

Mr. Udale thought that Mr. Harrison's remarks seemed rather to strengthen his argument that where there is an equable temperature there can be no deposition of moisture. Mr. Woodcock said his own opinions entirely coincided with Mr. Udale's that atmospheric influences cause the damping of blooms. At the Leicester Show, where they held a conference, one of the subjects touched upon was the damping of blooms. Mr. Peteh interpolated some words to the effect that he did not believe that atmospheric influences caused damping, but that it was something amiss with the roots. Mr. John Wright, who was the Chairman, referred to an instance where some plants of the same variety stood together near hot-water pipes. One plant had been allowed to get very dry, all the flowers on that plant damped. He suggested from this fact that the finer roots having perished the weakest part of the plant—the flowers—had suffered first. The fine soft petals collapsed and fungus or mould took possession of the decaying parts; hence the so-called damping in that case.

Mr. Baechus said that there were some varieties more susceptible to damp than others. In these he included Golden Dragon and Madame John Laing. He believed the cause of damping was taking the buds too late, which were never matured, and when they did open the sun had more effect upon them. He also mentioned plants standing directly near hot-water pipes being affected with damp.

Mr. Udale said he did not think he could have stronger support of his argument. It is a well known fact, and has been advanced strongly, that to avoid the scalding of grapes the best way is to keep an equable temperature night and day. He said at first that the chief cause of damping in Chrysanthemums was the deposition of moisture on the petals through the falling of the temperature.

Mr. Wright's theory was interesting, but there appeared to be a confounding of cause and effect. He says that the mould is the result of defective root action; I believe that the mould is the outcome of the decayed petals. With regard to what Mr. Baechus said about plants standing over pipes, the heat passed freely over the tops of the flowers, but we all know that the radiation of cold from glass during the night is greater than many of us suppose. He, therefore, contended that the heads of the plants should not be too near the glass, because moisture will be deposited where the temperature is lowest during the night. If the flowers are about 2 feet from the glass they will be safe. When a sunny day comes the more need there is for fire heat at night. Mr. Udale did not think anything had been adduced to shake his argument, though it is quite possible that damp may also arise from defective root action, and possibly Mr. Wright may not be wrong in his views.

Mr. Ledger said he would like to impart some information gathered from Mr. Tunnington on the question of damping. In answer to a question he had said, "My lad, damping comes in a night, and my opinion is that we lie in bed too long, and we want to be up before the sun and dry off the superfluous moisture. After housing place your plants well up to the glass until you get the bottom petals of the flower developed, then take them away to about 2 feet from the glass and keep up an equable temperature." He also said in answer to the question "Do you think feeding has anything to do with the damping of blooms?" that "Nothing ever passes through the roots that causes damping. We require a thorough circulation of air, the blooms not too near the glass, with a little fire heat constantly on, and it will be found that these are the best methods of avoiding damping." A question was asked of Mr. Udale if he had any ventilation on the house at night, to which he replied that he regulated that according to the temperature and the weather. Mr. Baechus recommended cultivators not to trust to the thermometers, but to place their hands on the pipes and regulate the temperature by that.

CHRYSANTHEMUM MR. W. W. COLES.

THE bloom represented on fig. 19 is engraved from a beautiful photograph by Mr. J. Duncan Pearson of the specimen as it was grown at

Chilwell. It is probably one of the finest that has been seen of this very richly coloured and promising variety. The name is rendered Coules in

W. Coles, who was once employed under Mr. J. H. Goodacre at Elvaston, and now a successful florist at Clamont, Delaware, U.S.A.



FIG. 19.—JAPANESE CHRYSANTHEMUM MR. W. W. COLES.

some catalogues and Coler in others, but we think the one given above is correct. The variety, we are informed, was named after Mr. Walter

Mr. Coles is, we are told, one of the best Chrysanthemum growers and exhibitors in America, and his bright chestnut red patronymic

will probably be seen in many stands in England during the next autumn campaign.

THE FINANCIAL SUCCESSES OF CHRYSANTHEMUM EXHIBITIONS.

FOR some years past I have been annually told that Chrysanthemums have had their day; each year was said to be the last in which it would maintain its hold on the great flower loving public. My answer to this has always been the same. When the Chrysanthemum can be replaced by another plant as useful, as showy, as varied, as easily cultivated, and adapted for as many purposes, then I shall believe in its decline in popular favour. Within the space of four weeks over fifty exhibitions were held, and few can say that the receipts have been less than in the past. Many have increased their income far exceeding any previous year in the amount taken at the doors, which is very gratifying to those concerned, and promising well for future ventures. Local circumstances, no doubt, have a great influence on the success or otherwise of all societies—Chrysanthemum or otherwise—such as a suitable position in which to hold the show, a good subscription list whereon the Committee can rely if public support is not granted. There is not the slightest doubt that a spirited policy does more to command success than anything else. Sums previously unheard of as prizes appear to justify the wisdom of the outlay, proving a financial and horticultural success. I am aware that there are societies who could not reap the same reward, even if their schedule contained more tempting prizes than hitherto offered. I allude to towns where the population is small. Again, there are some which do not seem to possess a flower loving public.

High charges of admission are not favourable to success. Most of the leading societies are now aware of this and act accordingly. Some societies pride themselves on the select company present at their exhibitions, but the exchequer is unsatisfactory. Again there are some towns where Chrysanthemum exhibitions are financial failures; the Committee reckon upon losing £70 or £80 at each autumn show, although they have always been noted for the quality of the exhibits. This annual loss is maintained by the excellent summer exhibitions, which appear to be more popular with the townspeople. In the same county exactly the reverse has been the case—the autumn shows are the only ones which have paid their way, those held in the summer being a failure.

Some societies favour a three-days show, although I cannot call to mind at present more than three that do. This is an arrangement more of a local character than otherwise, with the exception that exhibitors require a little consideration, who do not as a rule regard an exhibition of three days' duration with favour. If societies who have three-day shows offer extra prizes as an equivalent, no harm is done to exhibitors. For the low scale of its charges of admission the Portsmouth Chrysanthemum Society has done wonders; as far as I know they hold a position unique in this matter. One of their features is the admission of the working classes during three hours—six to nine—on the evening of the last day at the low charge of 1d. As showing how much this is appreciated, as many as 9509 passed into the Drill Hall during the time named, and which realised no less a sum than £39 12s. 5d. During the short time that this large number of people passed through the Show not a single case of misbehaviour occurred. During the years 1888 and 1887 no less sums than £26 7s. 6d., £33 15s. 9d. was received during the same time and at the same charge. This year there is a substantial increase of £13. During the three-days Show 21,490 paid for admission, realising a sum of £240 5s. 5d. as against £154 0s. 7d. in 1888. The Exhibition opened at a charge of 1s., which realised £35 11s., while £38 9s. 6d. was taken at a 6d. charge on same day. The second day's takings show a marked change, as much as £97 10s. resulting from a 3d. charge as against £9 9s. 6d. of 6d. Add to this the fact that nearly 5000 school children were admitted free.

The Birmingham and Midland Counties Chrysanthemum Society has long enjoyed the distinction of being the leading Society in the Midlands, both in the quality of its exhibits and for the position which this Society has maintained. As many as twenty-nine exhibitions have been held. Last season this Society enjoyed the distinction of having offered the largest prizes of any society, which shows the spirit that prevails. The results of this prove the wisdom of the venture. Great numbers of people flocked to the Show, and on the second evening the doors had to be closed on account of the crush of visitors. It is not often that money has to be refused at the doors, but in this case it was so. The receipts at the doors were £277, which is £74 in excess of any previous year, and £108 more than 1888. As many as 15,500 people visited the Show in the two days. There is no doubt that offering such large prizes added much to the success achieved, which plainly shows that the end attained justified the means.

I have added York in my list simply to note how the financial success of this ancient Society compares with other large towns. It must be taken into consideration that York is the centre of an agricultural district, therefore it cannot be compared in the matter of finances with such large manufacturing towns as Birmingham. The cash taken at the doors during the three days amounted to £171 10s. as compared with £130 5s. 6d. in 1888, which is a satisfactory increase. Add to this a subscription and donation list of about £136, and we find this Society on a good foundation.

The Hull and East Riding Chrysanthemum Society is the worst favoured of any yet mentioned in regard to site for their Exhibition, the Artillery Barracks where the Show is held being too small. The N.C.S. Provincial Show held in conjunction with this Society no doubt added to the success of the undertaking. No society that I know of has ever offered so many valuable prizes at one show as at the last Show. The

receipts for last two years do not differ much, the totals being £212 17s. 6d. for 1888, and £241 2s. 6d. for 1889. Here the wisdom of high-priced admission may be questioned, as at 2s. 6d. each during the hours from 12.30 to 3 P.M. only thirty-nine people paid, while on the same day from five o'clock until ten the sum of £62 1s. was realised at 1s. admission. Even in two hours on the same day—from three to five—as much as £44 in shillings was received at the doors; while during the whole of the second day the charge was 6d., which realised a sum of £130 4s., making in all a total number of visitors 5208 who paid at the doors. Add to this 1805 visitors, subscribers, and those who previously bought tickets, charity children, teachers, &c., and we have a total number of a little over 10,000 against a total of 8734 in 1888.—E. MOLYNEUX.

KENT COUNTY CHRYSANTHEMUM SOCIETY.

THE second annual general meeting of this Society was held at the Rink, Blackheath on Thursday evening, January 30th. In the unavoidable absence of the President, the chair was occupied by S. S. Bryant, Esq. The report and financial statement tendered by the late Committee were unanimously adopted. The statement shows the Society to be working on a sound basis and carrying forward a balance of £20. The election of Committee and officers for the ensuing year having taken place, some considerable correspondence was read from members at a distance and duly discussed. The dates for the next Show were finally fixed for the 4th and 5th November, to be held at the Rink as before, and it was resolved that in addition to the liberal schedule of prizes of last year, that efforts be made to offer a special "Centenary" prize to mark this event in common with other Societies. The meeting terminated with cordial votes of thanks to the Chairman for presiding, and to the Hon. Secretary, Mr. H. A. Needs; for his valuable service to the Society.

HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY.

THE annual meeting of the above Society was held on Wednesday, the 29th ult., when the report and balance sheet for the past year was passed, and officers and Committee elected for the ensuing year. The balance sheet showed that there was a profit of £8 15s. 7d. on the year's working of the Society, and the total funds in the bank £238 10s. 4d. The report referred to the Show in November last (which was held in conjunction with the second provincial Show of the National Chrysanthemum Society) as an advance on previous exhibitions held in Hull, which glances at the following comparative statement will show:—At the Exhibition held by the Society in 1888 the total number of exhibits of all classes was 220, while at the Show held in November last the number was 284, showing an increase of 64. The number of cut blooms at the last Show was 569 in excess of the number shown in 1888, while the value of prizes actually awarded, exclusive of challenge cups, was correspondingly larger, the amount in November last being £235 3s. 6d., as against £151 11s. 6d. in 1888, leaving a difference of £83 12s., a very large item. Mr. R. F. Jameson was unanimously re-elected Chairman, and Messrs. E. Harland and James Dixon Hon. Secs. It was announced that the next Show had been fixed for Wednesday and Thursday, November 19th and 20th, and the Judges would be Mr. J. Wright and Mr. Geo. Gordon. Mr. Geo. Bohn, C.E., one of the Vice-Presidents, presented to the Society a handsome silver challenge cup, value £20, to be competed for at the next Show, and received the thanks of the members.

COS LETTUCES.

WE have been trying for the past ten or eleven years to keep Lettuces through the winter, but they do not pay for the trouble. In the autumn of 1888 we placed out some 3000 plants of Bath Cos and Hicks' Hardy, and not more than 500 lived through the winter. Of the two the first stood the best, and on the whole was superior in quality. But there was no comparison between these and plants raised under glass in January, and planted out when ready on a warm border. They were scarcely a week behind those sown in autumn, and in addition to being of better quality there was fully double the amount of material in each Lettuce fit for use. We raised about 15,000 plants under glass last season of three varieties, and had good breadths of each. The varieties were Hicks' Hardy, Paris White, and Veitch's Superb. The last was decidedly the finest of the three, and is evidently a select strain of Paris White, or perhaps I may be more correct if I say has been carefully selected from that variety. It is a trifle earlier, larger, and stands longer without running to seed. Hundreds of plants from amongst that sown as Paris White were so much like Veitch's Superb that it was difficult to distinguish them, but it was clear that the selected form was the better of the two. Hicks' Hardy as a summer variety will not be grown again. It is large and crisp, the heaviest of the three, but it has large outside leaves, and a good quantity of them. When strongly grown it is prolific in making suckers, and when thoroughly filled up in the centre has started to run and bursts quickly. These are not its worst faults, it burns badly in the sun. The edges of the leaves turn brown and blotch, which destroys its appearance for market purposes.

To be successful with Lettuces when raised under glass every care is necessary to prevent the plants being crowded and drawing up weakly. If the seed is sown in gentle heat the boxes containing it should be removed to cool houses directly it has germinated. We place the boxes in a cool light airy Peach Louse, where the plants grow

sturdily, and are pricked off 2 inches apart into other boxes. When sturdy little plants about 1 inch high are secured they are placed in cold frames, and given air abundantly. The lights are thrown off when the weather is favourable, and are admitted to the frames at night, when there is no fear of frost. The boxes are stood out of the frames for a week or ten days to further harden the Lettuces before they are planted out.

To follow these seed is sown the first week in February, this time in boxes, which are placed in a cool house. The seed is a little longer in germinating, but the young plants do not run up an inch high almost at once, the same as they do when raised in heat. These should not be sown too thickly, and when they are ready for pricking out a low frame should be placed on a warm border, and the soil well broken up. With it should be incorporated leaf mould and potting shed refuse soil that has been passed through a sieve. We spread over the surface of the ordinary soil about 2 inches of this, so that the roots of the young plants will be in at first instead of the soil of the border. These grow slowly, but when planted out are ready for cutting by the time the majority of the earlier ones have been cleared from the ground.

For succession seed is sown in a frame on the same border a month later. The seed is sown on the surface of the soil of the border, and the plants are thinned out when large enough to prevent crowding. These can be pricked out, but we do not trouble to do so. A sowing is made outside during the last few days of March, and successional sowings are made at intervals of three weeks until the middle of June. Any rough low frames are good enough for the purpose of raising Lettuces. All that is really needed are a few boards nailed to stakes driven into the ground. If these are covered with lights they answer as well as frames of the best quality.

Young Lettuces are hardier than many really think. Last year we were told our plants would all be killed, and we should have our trouble for nothing. The weather proved most unfavourable before they had taken to the soil, and although they were battered and broken by strong winds and storms frost did them no harm; two or three genial days started them into growth, and they never looked back afterwards. Those in open exposed flats did as well if not better than those on warm borders. On the whole, those in the open were very much the finest, but about a week later than those on a south border sheltered by a wall 6 feet high. The plants one yard from the wall were very much inferior to those at the front of the border, which is 8 feet wide; those near the wall were drawn.

To grow Lettuces well the ground should be deeply dug if possible in autumn, and when this cannot be done, as early in the year as it can be cleared of other crops. On that dug early manure should be wheeled during frosty weather, and left in heaps ready for spreading some time previous to planting. We prefer to do this and fork the manure in at the same time, breaking up the soil well as the work proceeds. All the land that was turned up roughly last year became thoroughly pulverised and was in excellent condition for planting after it had been forked over and left for two or three days. Lettuces delight in well worked soil, and if the surface has become fine from exposure they are easier to plant and grow more quickly than when the soil is rough and lumpy at planting time.

Manure in a well decomposed state should be used. Lettuces dislike fresh manure, it is too hot and forcing for them, especially for plants that have to endure drought and bright sunshine. The roots take to rotten manure freely, but not when it is practically fresh. If it must be used in this condition it should be turned into the ground as it is dug or decomposed by frequently turning the heap. This, however, is too costly an operation, and does not improve the manure sufficiently to cover the cost of turning it.

Shallow drills are drawn 1 foot apart as planting proceeds, and the plants placed 1 foot apart. In planting care is needed to place the roots straight down—that is, open the hole sufficiently large to place in the roots without doubling them. Those from boxes generally plant with balls, and are planted with small trowels. After the plants commence growing the hoe should be run through the ground to loosen the surface and render it fine. The more the hoe is used the quicker the plants grow, and are ready for cutting fully a fortnight earlier than those that are only hoed to keep down weeds. It is surprising how one or two applications of soot strewn over them in their early stages during showery weather assists them to make rapid growth. This should be done while the plants are quite small.

During hot dry weather Lettuces do better on borders or flats that are not freely exposed to the sun. North borders can be selected, and mulching can be practised by those who grow a few plants only, but those who grow large breadths for the market cannot well practise these methods. They are not really necessary if the ground has been well worked, liberally manured, and the hoe is constantly going amongst them. When the surface is dry and fine they grow quickly even in dry weather.

Whether grown for home use or the market Lettuces pay well for the most careful treatment in their early stages, well worked ground and the most liberal of treatment. When they are grown for the market they should be pulled up, not cut off, for they keep fresh nearly double the length of time.—W. BARDNEY.

LIQUID MANURE FOR RESTING PLANTS.—The value of liquid manure occasionally to plants during their resting period may be clearly seen when they make a fresh start, as they grow more vigorously in

consequence, and often do not need repotting if the feeding is continued during their growth. Those that do require to be repotted are equally improved by the liquid manure previously given, as the stronger the growth the more quickly the roots take possession of the fresh soil.—A YOUNGSTER.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

AN adjourned annual general meeting of the above Association was held in the Horticultural Club Room, Hotel Windsor, Victoria Street, on Thursday, January 30th, at 3 P.M., T. Francis Rivers, Esq., in the chair. The principal business was the consideration of a code of rules based on those originally drawn up, but which have been found to be inadequate for the purposes of the Association. After considerable discussion it was duly resolved that the following rules should be adopted and printed.

RULES OF THE ASSOCIATION.

1. TITLE.—The title shall be the "The British Fruit Growers' Association."

2. OBJECTS AND METHODS.

A. *Objects*.—The objects of the Association shall be to promote the profitable culture of fruit in Great Britain and Ireland, to facilitate the distribution of fruit to consumers, and to disseminate practical information on these subjects.

B. *Methods*.—The Association shall endeavour to effect these objects by the means of meetings and conferences in the metropolis and the provinces, by the collection of reliable information, by the publication of such reports and essays as the funds may permit, by securing the adherence of local societies, by the award of prizes, medals, and certificates to successful cultivators and those who have assisted in the extension of knowledge in fruit subjects, and by such other methods as the General Committee shall determine.

3. MANAGEMENT.

A. *Officers*.—The management of the Association's affairs shall be entrusted to the following officers:—A President, Vice-Presidents, Treasurer, Chairman of Committees, Vice-Chairman of Committees, and an Honorary Secretary. All the officers shall be *ex-officio* members of the General Committee, the Chairman, Vice-Chairman, Treasurer, and the Hon. Secretary being *ex-officio* members of the Executive and all Sub-Committees. All the officers shall retire annually, but be eligible for re-election.

B. *Committee*.—The General Committee shall comprise forty members of the Association (exclusive of delegates from affiliated societies as provided in Rule 5), ten of whom shall retire annually, but be eligible for re-election. The members shall be proposed, seconded, and elected at the annual general meeting, and after the business of the annual meeting, or at the first subsequent meeting, the General Committee shall elect from amongst their own members an Executive Committee of fifteen members, to whom the arrangements for the current year will be entrusted.

4. ELECTION OF MEMBERS.

A. *Subscriptions and Donations*.—Any person who desires to become a member of the Association shall be proposed by one member and seconded by another at any meeting, and if duly elected shall, on payment of his subscription, be entitled to the privilege of membership in accordance with paragraph B of this rule. Donations of not less than 5s. shall confer the same privileges (for the current year) as subscriptions, if the donor so desire. Elections shall be effected by ballot or by show of hands, a majority being required to elect an opposed candidate. This shall apply also to members of the Committee.

B. *Privileges*.—1. Subscribers of 5s. per annum shall be entitled to personal admission to all general meetings and conferences, to a vote at the annual and other general meetings, and to a copy of the Association's annual report. 2. Subscribers of 10s. shall be entitled to a transferable ticket of admission to the meetings specified in section 1, to a copy of every publication issued by the Association, and all privileges named in section 1. 3. Subscribers of one guinea shall be entitled to the privileges named in sections 1 and 2, also to such assistance as the Committee can render in naming varieties of fruit, and to advice by letter on matters connected with fruit culture. Subscriptions for the current year shall be due at the date of joining the Association, and subsequently annually on Jan. 1st, and no member whose subscription is unpaid shall be entitled to take part in the proceedings or to the other privileges of membership.

5. AFFILIATED SOCIETIES.

Horticultural and other provincial societies concerned with fruit culture shall be affiliated with the British Fruit Growers' Association on the payment of an annual subscription of 10s. The affiliated Society will receive a transferable ticket of admission to all conferences, and may appoint a delegate as a member of the General Committee. A copy of each of the Association's publications will be sent to the Secretary, and two of the Association's certificates to be awarded for meritorious exhibits of fruit, for well managed fruit gardens, and for presentation to those who have displayed proficiency in fruit culture.

6. MEETINGS OF THE ASSOCIATION.

A. General Meetings.—General meetings shall be held as often as the officers may deem necessary, and such a meeting can also be called at any time on a requisition stating the object, and signed by twenty members, being placed in the hands of the Hon. Secretary at least fourteen days before the date of the intended meeting. The general annual meeting shall be held in January. No new rule or rules shall be added, or the existing ones altered, except at a general meeting.

B. Committee Meetings.—The General Committee shall meet at least twice a year, and the Executive Committee as frequently as necessary. At all meetings five shall form a quorum.

C. Conferences and Special Meetings.—Conferences upon fruit subjects and special meetings for discussion shall be arranged to be held in the metropolis and provincial towns in connection with horticultural shows or otherwise, as convenient or desirable. The whole of such arrangements will be undertaken by the Executive Committee of the Association or in conjunction with the local Committee. Papers upon special subjects will be read, and questions submitted for discussion. All papers read by members at the meetings shall become the property of the Association, unless otherwise arranged, and shall be printed or disposed of as the Executive Committee may decide.

7. FUNDS, EXPENSES, AND ACCOUNTS.

All subscriptions and donations shall be paid to the Secretary, who shall forward receipts. At each annual meeting the members shall vote a sum of money for the working expenses of the year, and that shall not be exceeded except by the authority of a general meeting. The Hon. Secretary shall be empowered to retain the sum voted for the discharge of the expenses incurred. All monies received beyond that amount shall be placed in the Treasurer's hands and will be dealt with as a general meeting of members shall direct, in the furtherance of the Association's objects. The accounts of the Association shall be kept by the Hon. Secretary, and audited prior to the annual meeting by two members of the Association appointed by the Executive Committee.

Mr. T. F. Rivers was then elected as Chairman of Committees and Mr. G. Gordon as Vice-Chairman, the following being the completed list of Officers and Committee for the year as elected:—

President:

Lord Brooke, M.P.

Vice-Presidents:

C. de Laune Faunce de Laune, Esq.

Robert Hogg, Esq., LL.D.

Charles Whitehead, Esq., F.R.A.S.

Philip Crowley, Esq., F.R.H.S.

E. J. Bailie, Esq., F.L.S.

Treasurer:

A. H. Smee, Esq.

Chairman of Committees:

T. Francis Rivers, Esq.

Vice-Chairman:

Mr. George Gordon.

Honorary Secretary:

Mr. Lewis Castle.

General Committee:

Mr. J. Austen
 " Albert Bath
 " T. W. Beach
 " George Bunyard
 " E. Butts
 " J. Chal
 " A. Christie
 " C. E. Clayton
 " G. W. Cummins
 " J. Dean
 " W. Earley
 " C. J. Goldsmith
 " G. Hammond
 " W. G. Head
 " W. Iggulden
 " A. Wells Ingram
 " R. M. Ivatt
 " W. J. Jefferies
 " John Laing
 " H. Lister

Mr. J. McIndoe
 " J. Miller
 " E. Molyneux
 Rev. A. B. Morris
 Mr. G. Merritt
 " J. C. Mundell
 " R. Parker
 " A. H. Pearson
 " W. Rupell
 " J. Smith
 " R. Smith
 " C. Selater
 " Brownlow R. O. Tower
 " W. Thomson
 " E. A. Trier, M.A.
 " J. Udale
 " J. Watkins
 " J. Webber
 " A. C. Wilkin
 " J. Wright

Several members were also proposed for any vacancies that may occur during the year.

The appended report of the Committee was submitted and adopted.

REPORT FOR THE YEAR 1889.

In presenting the first report of the British Fruit Growers' Association, the Committee consider it desirable to review the circumstances which led to its formation. Early in 1888 it was proposed by Messrs. George Gordon and Lewis Castle that a conference of fruit growers might be held at the Crystal Palace, Sydenham, in conjunction with the September show of that year. The manager of the Crystal Palace cordially entertained the idea, promised to provide a suitable place for

such a meeting, and to issue tickets to those specially interested in the subject. A representative Committee was formed, with Messrs. Castle and Earley as Hon. Secretaries, and a programme for a two-days conference was ultimately issued. This took place on September 7th and 8th, 1888, Mr. T. Francis Rivers presiding. There was an exceptionally large attendance, and the meeting proved an unqualified success. At the conclusion of the proceedings a resolution was proposed to the effect that it was desirable a Society of Fruit Growers should be formed, and that the Executive Committee of the Conference be entrusted with the preparation of a scheme for carrying this into effect. This was duly seconded and unanimously adopted. The Conference was also adjourned until October.

Before the second meeting was held a scheme had been devised for the institution of a Society under the title of the British Fruit Growers' Association, and at the adjourned conference in October 1888, this was announced and accepted. The first general meeting was held in the Crystal Palace, October 18th, 1888, at 6 P.M., Mr. John Laing, in the chair, when the Society was duly organised, members, officers, and Committee elected, and rules adopted. A general meeting was also held in the Royal Aquarium, Westminster, on November 8th, 1888, to discuss railway rates in relation to fruit transit, and much important information was evoked, but it was subsequently found that the funds of the Association would not permit an adequate inquiry in the matter.

On October 10th, 1889, a well attended Conference was held in the Crystal Palace, when Mr. T. F. Rivers presided, and papers were read by Mr. J. Wright and Mr. G. Gordon, followed by considerable discussion of an instructive character.

It is gratifying to the Committee to announce that these conferences and meetings have been freely reported in the daily and horticultural papers, and large numbers of letters have been received from many districts in Great Britain expressing hearty approval of the work of the Association in diffusing reliable information in fruit culture. The Committee also have abundant assurance that the conferences have assisted greatly in directing attention to fruit culture for profit in this country, and in helping to dispel the erroneous ideas, too freely circulated, respecting the enormous returns obtainable from a small capital employed in fruit cultivation. Much harm has been done by ill-informed advisers, for while fruit growing can be made to pay a fair profit for the labour required, the land occupied, and the capital expended, this cannot be accomplished without practical knowledge of the work, starting with a carefully considered scheme, and sound judgment in carrying it out.

The Association hopes to extend the sphere of its labours during the year 1890, and a programme is now under consideration. To enable this to be carried out satisfactorily, however, a material addition to its financial resources will be necessary. Owing to the low rate of subscriptions it is only by a great increase in the number of members and by donations from those interested in the Association that its object, the extension of profitable fruit culture, can be accomplished. During the years 1888 and 1889 the total expenditure was £18, leaving a small balance in hand.

The Committee also desire to state that the Association is not intended to act in rivalry with any other horticultural society or institution engaged in similar work, but rather to co-operate where possible, and to this end the support of provincial societies is invited.

The consideration of a number of letters containing propositions respecting the holding of meetings and conferences in the metropolis and the provinces occupied some time, and several members were elected. The working expenses of 1890 were estimated not to exceed £30, and this sum was voted in accordance with rule 7. The General Committee held a meeting subsequently, at which fifteen members were appointed the Executive Committee:—Votes of thanks to the Chairman, and to the Horticultural Club for the use of the room, closed the business of the meeting.

AM I IN IT?

AMONGST the manifold and great writers of the present day, and the encouragement they are receiving, an old fogey like myself, who formerly bore the burden and heat of the day for the mere love of the thing, and who always has been, and is now practically at work, may perhaps be excused if he thinks it a little hard to find himself shut out in the cold.

HALL FOR HORTICULTURE.—I have read that claimants are arising as being first to recommend a Horticultural Hall, now, and let me add always, so much wanted. For myself I should have been glad to have seen the structure years ago, and I did advise my best to have the Exhibition building of 1851 retained for the purpose upon the site where it then stood; and I still maintain a structure of the sort, adding a Horticultural Club and Hall, and leaving out the manufacturing and shop element, is what is wanted. I happened to alight upon an old copy of a letter I wrote in 1867, when the present Horticultural Club was very young, and we used to hold our meetings at Anderton's. I pin it to the title page of the *Cottage Gardener* for your perusal, to show how the idea cannot be claimed now as being original; and as I hope anything likely to be able to push this matter on may be useful.

ORCHARDING.—Perhaps you may think it well to reprint the orchard parts of the "Gardener's Almanac" entire, and at once, in the *Journal of Horticulture*, it may help again even now to push the work

along. I have only now just completed planting another new orchard, the stocks of which I raised from pips, grafted them myself experimentally (I am nothing if I am not experimental) with local Apples, and I hope to be spared another year or two to let you know the result. And now for something new on my part.

MEMORIAL TREES, A SOPORIFIC.—Great men have left it on record how to obtain sleep. The late Bishop of Oxford (Wilberforce) was the last I believe. His soporific was to count up to a certain number of figures, and repeat till Morpheus came; dry work, and uncertain. Now, many friends of mine through my request have presented me with memorial trees, both evergreen and deciduous. I have them planted around my place in sympathy. "When in the night I sleepless lie" (and I assure you I am not exempt from the troubles of this world) I walk and talk in mind around my living representative keepsakes, calling them by their own and their donors' names, thus:—*Cupressus Lawsoniana*, poor Woodbridge; *Taxus variegata aurea*, poor Howe; *Cupressus Lawsoniana viridis erecta*, poor Wildsmith; *Thuopsis borealis*, friend Bell; *Pinus austriaca*, friend Jones, must reluctantly trim off bottom branches; seedling purple Plum from Green Gage (excellent), friend Stroud; *Thuia Lobbi*, friend Coombes, must be top-dressed with some fresh loam; and so on, and as I have above 100 mementos which I can dwell upon and admire in my mind's eye I can generally reckon upon obtaining unconsciousness before I have got one-quarter through them, and upon the next sleepless night I begin where I left off, and so shake hands as it were with all my friends without neglect of any, and "so He giveth his beloved sleep." Let our friends try this plan.—**ROBT. FENN, Cottage Farm, Sulhamstead Abbots.**

[Our old friend is decidedly "in it," and on one part at least is very much awake. His proposition for retaining the Exhibition building of 1851 as a centre for national horticulture appeared in the *Cottage Gardener* of April 22nd, 1852. His proposition that we reprint "at once" his orchard notes from the "Gardener's Almanack" (1852) must have been made when under the soporific influence of his memorial trees, and if he rubs his eyes a little he will see that monthly instructions from January to December on reasonable routine could not all be in season "at once," good as they may be for the several periods of the year; but we find an article on small fruits that reads as fresh as the day it was written, nearly forty years ago, and which we will reprint for the perusal of present day readers, and those of them who are acquainted with the genial author will rejoice that he is still engaged in the youthful work of making experiments. If his new Apples prove as good as his new Potatoes he will deserve doubly well of his country.]



DRESSING ROSE BLOOMS.

It is not my intention to prolong this correspondence. I wrote to further the best interests of the Rose and her exhibitors. Your readers will judge whether "D., Deal," in his last letter does or does not simply beg the question. It may be that in this instance a certain legal maxim is being adopted—viz., when your case is weak abuse the plaintiff's attorney.—**J. H. P.**

MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY.

(Continued from page 65.)

Mrs. Barker (Laxton, 1876).—Of Victor Verdier race, following the manners and customs of its tribe; perhaps the lightest of them in colour, of excellent shape, but not very lasting.

Mrs. Harry Turner (Turner, 1880).—Of strong good characteristic wood and foliage, not much injured by mildew or rain. This is the brightest of all the deep crimson Roses, and would have a great reputation if it had but lasting qualities. Unfortunately the centre is weak, and it will not stand, so that it is next to impossible to show it. A free bloomer and fair autumnal. Sure to attract attention in the garden by the splendid glow of its colour.

Mrs. John Laing (Bennett, 1887).—One of the very best; apparently from similarity of wood and growth a seedling from François Michelon. One catalogue describes it as "in the way of Madame Gabriel Luizet," but this is surely a slip. Fine hardy growth and foliage; not liable to mildew or injured by rain. In the matter of "coming good" it may, I think, fairly dispute the palm with Marie Baumann, for it always comes well shaped with me, even in the autumn, and though a new Rose it has stood and successfully passed the tests of a cold, wet, late summer, and a hot early one. In every quality—petal, fulness of centre, shape, colour, lasting qualities, size, and freedom of bloom in summer and autumn it seems to be first rate. It is hardy and strong in constitution, and, in fact, I am puzzling my brains to think of a weak spot or deficiency of manners in any respect, but in vain. Go up to the top of the class, Mrs. John Laing, among the choicest of Rose queens.

Paul Neyron (Levet, 1869).—Alphabetical order is strictly impartial, and we have here, following a gold medallist, one of the "best abused" of Roses. Of extraordinary strong growth and foliage, little injured by rain, and almost entirely untouched by mildew, with enormous blooms

of grand stout petals, Paul Neyron is yet justly considered to be too coarse and wanting in delicacy and symmetry for a florist's flower. The outside world have often (most unjustly) taunted Rose exhibitors with going in for mere size, it being their idea, I believe, that Edouard Morren and Paul Neyron are the special darlings of our hearts. I remember on one occasion a worthy gentleman sending six Paul Neyrons with considerable confidence to a show in his neighbourhood, and instructing his gardener to pick out the "biggest." They formed a most ludicrous sight against other well shown Roses; so utterly overblown, shapeless, and discoloured that, as "Duckwing" observed, a cow would have turned up her nose at them. It may perhaps be said that this was mere local ignorance, but I also remember one or two articles from the editor's pen in a weekly journal of very high repute, in which the sorts raised and shown by exhibitors were condemned as being chosen for mere size and blowsiness, and as worthy of the terrible title of the articles in question, "Ugly Roses." Paul Neyron is occasionally shown in fair form, and would be oftener thus exhibited no doubt, but rosarians have felt the weight of the unjust stigma alluded to above, and poor Paul Neyron and Edouard Morren have become bywords among them. Fairly free flowering and pretty good in autumn, with its strong growth and constitution, and especially with its remarkable immunity from mildew, the evident use of this Rose is as a seed parent to instil vigour and size into refined but weakly sorts. Mons. Levet has already made use of it in this way, as we know, and Paul Neyron lives again, with vastly increased reputation, in Ulrich Brunner.

Penelope Mayo (Davis, 1878), syn. *Duchesse de Caylus* (Verdier, 1864).—Rather weakly in growth and foliage, with wood of very distinct appearance, and not much liable to injury from mildew or rain. The blooms come fairly well, small, but sweet scented, of perfect form, good centre and bright colour. It still keeps its place, but a Rose which is weakly in growth, not good in free flowering or autumnal qualities, and decidedly below par in size, will fall out of the lists, I expect, before long.

Pierre Notting (Portemer, 1863).—Of very vigorous strong growth with extra large fine foliage. Rather liable to mildew, and will roa without opening in wet weather. This Rose "comes" very badly as a rule, being slow in opening, and showing a great hollow in the centre right down to the eye even before it does expand. The plants are passee by as hopeless again and again; then, with some mysterious climatic change (for fine weather alone will not do it), towards the end of the season the blooms sometimes begin to open properly when all the strongest are over, and we see what a truly grand flower it can be when it chooses. Though still weak in centre and in endurance, it is the excellent in shape, colour, fragrance, substance, and size, and "bad manners" alone keep Pierre Notting from a very high position. It is aggravating to see such splendid shoots produce nothing but ill-formed hollow lumps, which can hardly be called Roses, while the plant has such fine possibilities within its reach. Free flowering but not a good autumnal, the second crop of blooms being seldom of any value. The violet shade on the outer petals has always appeared to me one of our nearest approaches to blue; and appearances seem to show that the first blue Rose (when will it come?) will be a dark one.—**W. R. RAILLEM.**

(To be continued.)

IMPROVING AN OLD ORCHARD.

RESPECTING the application of liquid manure to fruit trees in winter, I can add a little testimony. Eleven years ago last August I took charge of an old orchard. The trees were in a bad condition, and the fruit they produced did not always satisfy the cook. Some of the tree stems were 9 to 11 inches in diameter, quite hollow in the centre, and birds reared their young in the holes every spring or summer, and I was told that the trees only had a crop every alternate year. They were standards, planted 15 feet apart, though 40 feet by 30 feet would be a great deal better, with nuts and bush fruits between, also a few Farleigh Damsons planted at intervals, that would give the Apple trees a chance of benefiting the occupier. The orchard in question was sheltered from strong winds. The depth of soil was only 5 to 9 inches, on limestone, for 18 inches or 2 feet, in thin, flat pieces in layers; below that the stones were thicker. Many of the tree heads were crowded with wood, some of the branches crossing each other. The stems and branches were also covered with moss, and some of them with Ivy climbing. The causes of the defects, I considered, were overcrowding the heads and poverty at the roots.

In starting for improvement we thoroughly thinned the branches, carefully smoothing the wounds with a carpenter's chisel. The cuts were then painted over with a composition of clay, cowdung and soot. The stems and large branches were scraped, and when finished we gave a good lime-washing, with a little soot added to kill the moss on the small branches. A labourer went with a wheelbarrow of lime (slacked), with a shovel threw the lime up amongst the branches.

There happened to be a good liquid manure tank with a pump in the crew yard, and with a large barrel in a cart a man with a strong pony carted out the liquid in frosty or wet weather all the year round. We gave a load to each tree; when all the trees had been supplied we began again for about six or seven years. After the trees had four or five years such treatment some of them carried crops of fruit that would not have disgraced anyone. Some of the fruits with other varieties added did good service on the show tables for more than one year. That was not all, for instead of the trees bearing a crop of fruit every alternate

year, as they once did, they gave a good crop every year. They did not make much wood, and I believe that if fruit trees had plenty of room on a stone bottom, sheltered and well fed at the surface, that they would bear a good crop of fruit every year if they had only about 1 foot of soil to root in. Yet with all their improvement the old trees did not give the same satisfaction as young trees planted about the time the improvement began. Young trees properly planted and well fed from the surface give grand results. My idea is old trees for quantity, young trees for quality of fruit.

I knew a tree of the Blenheim Pippin Apple which is growing in the centre of a cesspool. The hole is about 6 or 7 feet in diameter, and acts as a catch pit for a drain that takes the refuse water from five or six cottages. It is about 18 inches deep in the centre, where the neck of the tree is, on rocky ground the water draining away leaves the mud behind. As a rule it is only cleaned out once a year, then there is often 4 to 6 inches of mud surrounding the stem of the tree. For all that the tree looks healthy, the leaves are a fine green colour, and a good crop of fruit is borne each year.—ONE DISENGAGED.

SEASONABLE HINTS ON HARDY FLORISTS' FLOWERS

THE very remarkable season through which we are passing must have its influence on all flowers, and amongst them those which are ordinarily known as florists' flowers, a term which I use in a much more restricted sense than many do. According to some, everything that is grown in collections comes under that term, while hardiness seems to be no characteristic worth considering, for I find Dahlias included in the designation, although the first frost turns them black. I have no doubt that the question which perplexes many growers, or rather exhibitors, is,—Shall we suffer for all this mild weather by-and-by, or shall we have a very early season? At present there is every indication of the latter, but we may expect the inevitable cold east winds of March and April will probably alter the entire aspect of things. Of all idle things that of prophesying about the weather in our climate is the very idlest, and so we must act for the present and hope for the best.

AURICULAS.—The last time that I mentioned these I said that I had never had so little autumn bloom, but the excessively mild weather that we had at a time when we might reasonably look for snow and frost has roused many of those plants which were resting out of their sleep, with the result that I have now quite a number, I am sorry to say, which are flowering. This is the more to be deplored, as it is impossible to look for a bloom for them at the proper season. There is some hope when a plant blooms in September, but never when it blooms in January. I cannot quite agree with Mr. Douglas that frost does not injure the Auricula. Perhaps not, as far as the vitality of the plant is concerned, but it used to be held by the older florists that although it might not affect the vitality of the plant, yet that it did a considerable amount of damage by crippling the flowers, and that many a rough bloom was to be attributed to this cause. He seems to think that it does no injury. It is a matter about which there is no positive proof, and so each may keep his own opinion. I have heard of one enthusiast of former days who, knowing that the Auricula was of Alpine origin, opened his frames during a fall of snow, with the result of the loss of his collection.

At this season it used to be *en règle* to top-dress the Auriculas, taking out the surface soil to the depth of an inch, and filling in with fresh and rich compost, but the modern system of culture saves us all this trouble. I remember when it used to be a heavy piece of business, and I think it is a great matter to be spared it. I have not yet put my small collection into their blooming quarters (a pit) without any heat, but intend to do so at once. The pots will then be manured singly, all dead foliage plucked off, any offsets that are large enough removed, the surface of the soil moved, and if there are any traces of woolly aphid round the stems they will be removed; but their existence anywhere else about the plant does not trouble me much now, although it did formerly, and I have lost many a plant by trying to cure it when I ought to have left it alone, for I cannot find that it does any material damage except when it attacks the collar or neck. As the plants will now be moved into a more sunny position they will require during favourable weather more water, and air should be given as much as possible by night as well during the day when the weather is not frosty. The Auricula loves fresh air, although it is wonderful how it thrives near to towns, although one of our largest northern growers for sale, Mr. Jonathan Booth of Failsforth, tells me he has been obliged to give them up owing to the increase of buildings around his garden.

CARNATIONS AND PICOTEES.—These are looking very well, the foliage having that blue glaucous look which is so indicative of health. They have been kept as dry as possible, and I see no spots on the leaves and very little dead foliage. They will remain in their present quarters (frames) for another month or six weeks, and in the meantime everything should be got ready for potting. The pots should be washed and stowed away, the compost well turned over and hand-picked, so that all worms, and specially that destructive one the wireworm, can be carefully picked out. The pieces of turf should be pulled to pieces, as often he lurks within. The compost should be well turned over. Mine is placed under a glass roof open on all sides, it is thus protected from the rain while it has the wind playing upon it continually. It is well to look to labels, and where these have by use been worn or the writing obliterated fresh ones should be substituted. An amateur who loves his flowers is always desirous that they should be correctly named, even

though no appreciative eye but his own rests on them. This is unfortunately my position, and save ourselves there is hardly anyone who enters my garden who knows the difference between a Carnation and a Picotee. The pleasant chats which growers have one with another in the neighbourhood of the metropolis are denied to us who live in rural districts.

GLADIOLI.—This very remarkable season has somewhat interfered with growers of this grand autumn flower. Where care has not been taken in storing them they have started into growth, while it has been almost impossible to turn over the beds owing to the constant rain we have lately had, and it is far better to leave the beds alone than to attempt to do anything with it when the ground is at all sticky. I have always advocated the plan of laying the roots out singly, so as to prevent their growing, and am to-day an example of those people who preach but do not practise, at least in this way. All of our roots I treated in the open frames which I have used for many years, and which I have described in the Journal, but I this year received some from Fontainebleau, and of some there were three or four corms. They were in brown paper bags, and seeing how beautifully they were harvested, and being very busy at the time, I put them away in the bags. The other day I went to look at them, and great was my horror to perceive some had shot out shoots an inch long, and others had begun to emit roots. I did not trouble myself, but those which had started I felt must be attended to. The ground was too wet to plant them, so I determined on placing them in small pots, to be turned out afterwards when the beds are planted. I found that it was the early flowering varieties, such as Shakespeare, Adolphe Brongniart, Sceptre de Flore, and Arrière Garde which had started.

PANSIES.—I have just repotted some, and they seem to have passed through the winter very well, having been kept as hardy as possible and given plenty of air at all times; as the one danger with these is damping off, they have been kept somewhat dry, but not allowed to flag. I have long since given up the Show varieties, and only grow the Fancies, which are now so large, smooth, and finely shaped, and certainly more hardy and more easily propagated. Like the Auricula and Carnation they enjoy plenty of air, and are impatient of damp.

RANUNCULUS.—The time for planting the Persian varieties will now be at hand. The ground is now with us very wet, and should frost come it will be great advantage to it to turn the soil over, otherwise it had better be left alone. My time for planting is about the 12th of February. Some care, as I have frequently stated, is required in planting them, about 1½ inch in depth, the rows to be about 4 inches apart, and the roots to be planted between 4 and 5 inches apart in the rows. A little sand may be sprinkled over the roots when planted, and they should be very firmly pressed into the ground, as they are so likely to be disturbed by earthworms.

ROSES.—It has been a wonderful season for the Rose. The tops of the shoots are in many instances quite green, but I do not see any pushing out of the lower buds. Tea Roses took wonderfully well. Whether we shall pay for all this by-and-by is of course all uncertain, and it will be well to let the mulching remain on the beds so as to protect them from frost if it should come now. A number of Tea Roses did not reach me until it was too late to plant, and they are now heeled in, and will not be planted until March. This is the plan which is recommended for cold situations, but my adoption of it has been a matter of necessity, not of choice.

TULIPS.—I do not profess to grow these as a florist ought to do. I have some varieties, but I never take the trouble of planting them in rows according to height and colour, but they give me a good deal of pleasure for all that. Most of the bulbs I obtained from Holland I have been obliged to discard, as the flowers were either ill shaped or stained at the base, for whatever the Dutch may have been in former days, they are behind the English growers now. The bulbs will soon be putting their heads above ground, but they are very hardy, and do not require protection.

Let me again repeat that I look at these flowers, not from the exhibitor's point of view, but that of the amateur who delights in his garden and enjoys his flowers for their own sake.—D., Deal.

SULPHIDES AS FUNGICIDES.

IN the *Journal of Horticulture*, January 2nd, page 2, Mr. Tonks describes the way bi-sulphide of calcium is made. Having used this excellent fungicide for several years and with the best results, perhaps it might be interesting to some of your readers if I explain the way I make it.

Mr. Tonks points out the difficulty of getting fungicides to adhere to the fungus, and this was just the difficulty I experienced. My first trial with it was four years since. I had a quantity of pot Roses badly affected with "Orange fungus or rust." I tried everything usually recommended for such maladies such as flowers of sulphur, paraffin, Gishurst compound, &c., but none of these had the desired effect, or indeed any effect whatever, and this disease spread to every plant I had, and before the wood was half ripened every leaf was off.

I forget just at this moment where or how I came by the receipt which Mr. Tonks has so kindly given, but at all events the one I use is identical, only I make larger quantities, namely—3 lbs. of lime, 3 lbs. of sulphur, 3 gallons of water, and I strain this through muslin and bottle off, and, as Mr. Tonks says, this is a bright yellow colour. I use a small thumb pot full to 3 gallons of water. When I first used this I found that it did not stick to the fungus, therefore it was not

absolutely effectual; it checked it considerably, but I was not satisfied and determined to try a little softsoap, which I dissolved in warm water, 2 ozs. to 3 gallons of water with the sulphide, this I thoroughly stirred and mixed together. I turned the pots on their sides and syringed the Roses thoroughly with it, and since that time I have never seen the slightest suspicion of "Orange fungus" on my Roses.

Whether the softsoap caused the sulphide to stick to the fungus or not I am not prepared to say, but perhaps Mr. Tonks will tell us that, but the above are the plain facts. I have no doubt that it would have the same good results on Hollyhock affected by the fungus.

There is only one objection to its use so far as I know, and that is when used in houses it will discolour the paint, but as Mr. Tonks says, this can readily be removed by a little warm water, and probably the syringe would fetch most of it off if charged with warm soapy water. It is the best remedy for the common mildew whether on Roses, Vines or other plants subject to it I have used.—T. A.

THE FRUIT QUESTION.

THE following report from the *City Press* contains the substance of the speeches delivered at the banquet of the Fruiterers' Company that was briefly referred to last week:—

The MASTER (Sir James Whitehead, Bart.) said agriculture and horticulture went hand in hand, and whatever affected one must more or less affect the other. Agriculture in these days required to be supplemented to some extent by the cultivation of fruit. He was not going to say that every farmer could make a profit of his farm by the cultivation of fruit; but this he did say, that every farmer, if circumstances favoured him, might by the cultivation of fruit add something to his income, and he thought, too, that if the farmer was able to add something to his own income, he might also add something to the income of the landlord and the labourer. So far as the Fruiterers' Company was concerned he could assure them their aim and endeavour would be to promote the cultivation of fruit in this country. It might be that in the past initiation of the Company there was a feeling of protecting the people in regard to foreign imports of fruit, but they had advanced very considerably beyond those times, and they must satisfy themselves that they were acting up to the spirit of the day in which they lived. He believed the desire of the Fruiterers' Company was to act on the same lines as those of the Royal Agricultural Society, and to promote, as far as their means would permit, the cultivation of fruit in our homesteads and agricultural cottage gardens throughout the kingdom.

It might be possible that in this way the Royal Agricultural Society and the Fruiterers' Company would be able to work together. The Fruiterers' Company would be glad to avail themselves to the fullest extent of the organisation of the Royal Agricultural Society. They encouraged agriculture in every district of the kingdom, and he believed it was the intention of the Fruiterers' Company to follow in their lines, and do what would promote the cultivation of fruit in all parts of the kingdom. He hoped as a Company they would be brought into very close relations with the Royal Agricultural Society. He was very glad that since a letter was issued to the public by the late Master—their very active and energetic Master, Mr. Mason—the subject had taken hold of the minds of the people of this country, and he believed there had never been a time when there was such a thirst for knowledge in regard to fruit-growing as there was at the present moment. They could not satisfy that knowledge, they could not give prizes, they could not encourage the cultivation of fruit unless they had the necessary means. He would like the public at large to place in their hands, say £10,000, so that with the interest of that sum they might, following the action of the Royal Agricultural Society, give encouragement to the various districts of the kingdom for the cultivation of such fruit as they had a capacity for growing, aye, and growing as well as any country in the world within their own borders. They were quite alive to the necessities of the position, and providing the public at large would come forward and support the Fruiterers' Company, they were willing to exercise their influence and the means at their disposal for promoting the cultivation of fruit in this country. Since the issue of Mr. Mason's letter they had received something like £1600, including £500 from the Fruiterers' Company, which, considering the small funds at their disposal, was a very large amount. One thousand six hundred pounds at the present time was all that was in the possession of the Company to enable them to carry out the scheme they had adopted. The subject was one of great national importance, and he hoped the public would assist them in their effort to restore the orchards throughout our homesteads and cottages, and add to the industries of fruit-growing.

Since they met twelve months ago a very excellent essay had been written for the company and published through the kindness of their friend, Mr. H. R. Williams. In that essay, which should be in the hands of every man in this country who had an acre of land, Mr. Wright had shown them how they might cultivate fruit at a profit, and he thought if the Fruiterers' Company had done nothing else during the year than produce that essay, it would be sufficient to justify their existence. He was inclined to think that the Legislature could do a great deal, and he thought that in all rate and State-supported schools in the rural districts the theory of horticulture, as well as the theory of agriculture, should be taught, and that these should be made compulsory subjects. What earthly good was it to a lad in an agricultural district who had to plough, and sow, and reap, and mow, that he should be taught something about science and art, and that no consideration whatever should be given to the very business in which he was likely to be engaged the whole of his

life? Technical education ought to be of a practical character, having reference to the districts in which it was given. So far as this subject was concerned, the Government of the day had risen to the situation, and in the Education Code which was put before Parliament last session, but which was unhappily withdrawn, Sir W. Hart Dyke provided that a Government grant should be given to all rate and State-supported schools for agricultural chemistry and the rudiments of agriculture, including horticulture, just as now grants were given in connection with the Science and Art Department of the Government. Whatever Government might be in power they would be impelled by the necessities of the nation to do what was required for the public good. Sir James referred to the great assistance which the Government of Denmark had rendered to agriculture and the butter industry, and asked why they could not take things up here in the same plucky and determined manner. By all means, he said, let them not forget that the greatest amount of wealth to this country came from our own soil. (Cheers.)

Major CRAIGIE regretted the absence of the chief of his department, Mr. Chaplin, and said that as the youngest member of the youngest institution of the State they would not expect him to say much. In representing very inadequately the missing link between the practical agriculture of this country and the Board of Agriculture he would only say that they watched with interest such movements as the one which had been initiated in the City of London, which must tend to the development of one of the most essential branches of the agriculture of this country. He pointed out that it had been already directed that in future the word "horticulture" should be included in the word agriculture. (Cheers.)

Colonel KINGSCOTE said he was sure it would be the wish of the Council and of every member of the Royal Agricultural Society to go hand and glove with this Company in promoting the growth of hardy fruit in every way possible. There was a great consumption of jam in this country, and they did not want any to come from a foreign source. If they put their shoulders to the wheel they could keep foreign countries out. There were hundreds of thousands of places in this country where the cultivation of fruit would be of the greatest advantage. Let landlords help future tenants by planting more trees, let tenants take more pains with the trees they had got, and let them be more careful in sending their fruit to market, and a glorious service would be rendered to the agricultural interests of the country. (Cheers.)

The LORD MAYOR said his father was the first man to introduce foreign fruit into this country, and in that capacity he had heard him spoken of as a public benefactor, for the introduction of foreign fruit had given employment and enjoyment to large numbers of people. His Lordship proceeded to refer to the great facilities afforded for bringing foreign Plums to England, and observed that the carriage was a very important item. His firm brought packages of Oranges in vessels they had chartered from Valentia to the wharf adjoining London Bridge. They weighed a hundred and a half, and were carried over in eight or ten days at 1s. 6d. freight. This was equivalent to four bushels of fruit. They must not shut their eyes to these facts. Let them make fruit-growing an item of education, but don't let them delude themselves, don't let them enter on a large enterprise and collect money unless they were assured there was to be some good result. His Lordship concluded by speaking of the energy, enterprise, and patriotism of the Master in very eulogistic terms.

The MASTER thanked the Lord Mayor for the kindly words he had said respecting himself personally, but he could not conceal the fact that he would have been more gratified if his Lordship had not damned the objects and aims of the Company with faint praise. He believed there was an opportunity of developing fruit-growing in this country, and he was sorry that on this matter he differed even to a slight extent from his successor. It was easy enough to say there were difficulties in the way. They recognised the difficulties, but did Englishmen ever give in because there were difficulties? He knew they could not grow Oranges in the open, he knew they could not produce Apricots and Peaches as they could be produced in the South of France and Spain, but he said they should in this country encourage the growth of such hardy fruits as they were capable of producing, and that they might in this way get additional production from the soil, which would go to increase the wealth of the nation. (Cheers.)

CATERPILLARS ON FRUIT TREES.

I AM perfectly convinced that very few people have the smallest idea of the dangers to which they are exposed in the growing of fruit from the ravages of the winter moth. There should, however, now be no more ignorance on the matter after the engraving given in your issue of the 30th of January (page 95). When it is considered that I have taken as many as 115 cuttings similarly infested from a tree not exceeding 7 feet high, your readers will understand how it is that the foliage and buds disappear with such rapidity when the warm weather hatches the eggs. "The prosaic work of pruning the trees again" was done here last spring, but in spite of that sufficient caterpillars hatched to leave the thousands of trees under my care quite bare of everything green. Further, the re-pruning furnishes the moths with fresh facilities to lay eggs during the autumn. What is wanted, in my opinion, is some substance to be applied to the ends of branches and covering up all nooks and crevices. If such can be done we can deal more easily with the eggs laid on the bark. I am making experiments with this view, and will let you know the results later on, and also, should you wish it, send duplicate specimens. Our

Pear trees were so weakened last year by the caterpillars that our crop this year will be nil.—S. T. WRIGHT, *Glewston Court Gardens*.

[We shall be glad to hear of the results of the contemplated experiments with such specimens as our correspondent thinks may be usefully sent. The best efforts of the best men in growing fruit may be completely nullified where the destructive winter moth abounds, and every effort should be made to conquer this the most ruinous of the fruit growers' enemies. The idea of sealing the ends of branches after pruning occurred to us, but we felt certain it would also occur to our correspondent, and we preferred that he should have the credit of the suggestion.]

GARDENERS OUT OF SITUATIONS.

YOUR correspondent, "B.," page 60, has made some remarks on the above subject, and throws out some hints as to the formation of a self-help society, and which is possibly a direction in which some good might be done, but "so many out of place" has been the cry in my experience for nearly forty years, and of course a pleasant healthy trade or calling like gardening will always attract more than can possibly find good places in Great Britain, and the consequence must be that numbers on reaching man's estate must change their occupation or emigrate with a knowledge of the cultivation of the soil. It has been said that London itself is under the care of a certain number of under gardeners in uniform; meaning that the London police are largely recruited from our ranks, and of which I, for one, do not feel at all ashamed. Your correspondent says, What does a gardener gain by working for a nurseryman when out of a regular situation? I say a great deal, provided he keeps his eyes open, and employment mentally and physically is good. It is well known that in such cases their pay is small, but a man would not show his wisdom by refusing half a loaf if he had no bread. "B." further says he gains nothing for himself, and does a great injury to the permanent staff of a nursery; to my mind a ridiculous assertion. The gardener is quite the equal of the best kind of men employed in nurseries, and if the gardener is worthy of his salt, although receiving small pay in a nursery, he will do a fair day's work in an upright manner. No doubt there are black sheep in all walks of life, but these must not be classed with the general body. I maintain that the connection between nurserymen and gardeners, both in and out of situations, is a perfectly just and honourable one to all, the best way of getting the right man in the right place. What would be the use of nurserymen keeping qualified men to produce good nursery stock if they knew their clients had not qualified gardeners to make the best of it? In such cases the reputation of the nurserymen is often in the gardener's keeping, and both can work together in an honourable way without loss of dignity on either side.—R. M.

In answer to "B.'s" views in page 60 in this paper of January 23rd respecting a society being formed in aid of gardeners out of situations, I quite agree with the suggestion. For years past my views have been the same as "B.'s" on that subject, and I have often discussed the matter with many of my brother gardeners, who have also agreed on the above. I for one would be glad to become a subscriber, and would endeavour to do my best among my brother gardeners, friends, &c., in this district to subscribe to the above should such a society be formed, which I believe would be a success.

I think if most of our kindhearted brother gardeners were to unite together throughout the country, and subscribe so much annually to form a society in aid of gardeners out of employ, this would be a great boon and relief, long looked for.—GARDENER, *Surrey*.

THE letters of "B." and "H. B. W.," page 93, are worthy, I think, of serious thought and attention by our leading men. I am of the same opinion as your correspondents, that it is time gardeners combined together more for their own interests. Surely many would be willing to join such a society for helping those who are out, very frequently not their own fault. I shall certainly, for one, whenever I am in a settled place, be willing to do my part towards the object. Could not something be done by the Committee of the United Horticultural Provident Society? I throw out the hint for what it is worth, and hope the members will be able to take up the matter. Let me urge upon all young gardeners to join this Society, they will find it answer better than any other provident society I know.—A. B.

THE PARSLEY-LEAVED BRAMBLE.

YOUR correspondent "Rubus," on page 61, appears to have been at some pains to discover the native home of this, which is, I believe, the best and most useful amongst the large-fruited Brambles. Mr. F. Boyes, on page 48, is quite correct, I believe, in his assumption that it originated in the nurseries of Messrs. Fisher, Son, & Sibray—then Fisher, Holmes & Co. The principals of that firm have repeatedly informed me verbally, and they have also published the same on a leaflet which they distributed to their customers many years ago, that it originated as a chance seedling—probably from the American variety "Kittatiny"—in their nursery grounds some thirty or more years since.

Mr. Udale, I think, strikes a right chord in his remarks as to its requiring a good warm sunny position to ripen the long and strong canes made annually in order to obtain the most fruitful results. The

row which has been several times alluded to as being under my cultivation for some years at Oakbrook, occupied a similar position on a south border to what that did at Elford Gardens, which I have several times had an opportunity of seeing, and of observing that they were equally as fine in growth, and as fruitful, as were those at Oakbrook. I think the mistake is too often made in its attempted culture that being only a mere Bramble any out-of-the-way corner was sufficiently good for it. Such is not the case, as Mr. Udale points out, and given such results in fruit production as achieved in the several cases he cites, it will well repay the cultivator for giving it one of the best positions at his disposal.—W. K. W.

[We shall be glad to know the year in which the seedling appeared at Handsworth.]

EUCHARIS AND THE MITE.

MR. TAYLOR'S experience in destroying the Eucharis mite on the affected plants in his charge is interesting as affording another instance in which the dreaded enemy has been "bearded in his den," and the rapidity with which the plants have grown since is conclusive proof that the conditions for their growth could not have been very unfavourable. Three partially decayed bulbs filling a 10-inch pot within a year is no bad record; but Mr. Taylor has only followed the lead of the correspondents to whom he refers by detailing his experiences, for surely there is no better way to help another through a difficulty than by relating the manner in which that difficulty has been overcome by oneself, although I fail to see why he should give precedence to the experiences of an amateur or beginner. Mr. Taylor says he has proved three things, and the third affords room for an epithet to be applied to any gardener who may have unhealthy plants in his charge, which could not have been applied with the same force after the remarks of any writer who assigned the cause of their unhealthy state to mismanagement, besides being rather contradictory to the sentence in which he says something about calling our brother gardeners unskilful. No gardener worthy of the name would intentionally say or write anything which might get a fellow craftsman into trouble, and if in any instance this has been done we may be sure that the shaft found mark "the archer little meant." It would have been better had Mr. Taylor proved fourthly how the mite originated before he slighted the claims already advanced. Does he believe in spontaneous generation?—M. D.

TOO SUCCESSFUL PRIZEWINNERS.

WHILE I do not approve of "Head Gardener's" proposal of withholding all first prizes above three guineas by one competitor, I have been long of the opinion that instead of dividing, say £10, into three prizes, £7 for the first, £2 for the second, and £1 for the third, it would give more satisfaction to the general public if first, second, and third prizes were named only in the prize schedule, leaving the amount to be divided by the judges to the exhibits according to merit. Frequently the competition is very keen or close, the judges having a difficulty to decide the honours; then sometimes the second and the third best are very deficient and below the standard as prizetakers, having little or no merit whatever to entitle them to a prize. Some managers of local shows encourage competitors by paying prizes, although the exhibits do not deserve it; but I consider at country or open competitions the judges should have, in addition to awarding the prizes, the power of fixing or dividing the amount according to merit. I have always thought it disheartening to a competitor to be content with almost nothing more than the name as a second place prizetaker, while the first one had little in the exhibits to recommend it over that placed in an inferior position, while both had the same labour and expense in bringing their exhibits before the public.

Say for Roses, A takes first prize, B second, and C third. The exhibits were so near each other in competition that the judges awarded the £10 offered in the following order:—A, £3 10s.; B and C, £3 5s. each. I am of the opinion some system such as that would be fairer than the present one, while it would be encouraging, and more competition would result.—WM. THOMSON.

AS you invite suggestions to meet the letter of "Head Gardener" on this subject, printed in your answers to correspondents on page 79, I should like to say that I think most persons will heartily agree with your editorial recommendations. It depends a good deal upon whether "a too successful prizewinner" competes on precisely equal terms with the other cottagers. If he does, there is no remedy for them but to pluck up a little spirit, and try to beat him. Let them learn from him, and if necessary try to win in detail by becoming specialists, one going in particularly for Onions, another for Potatoes, and so on. But although there certainly is a terrible want of pluck in cottagers as exhibitors of garden produce, the Committee must remember to "be just before it is generous," and should not rob a man of a first prize to which he is fairly entitled.

But if the "too successful prizewinner" is or has been employed in any garden it will be suspected, even if it is not true, that he does not compete on perfectly level terms, and in my own cottage flower shows I have been obliged to make a separate division for persons of that class. Such a one often shows his superiority, not so much by his being able to get better seeds, &c., as by his better knowledge of what is a good vegetable and what is a bad one. Here, again, the other exhibitors

might lean in time to beat him simply by a study of the first prize exhibits as compared with their own; but, as I have said, they have no enterprize for this, soon get disheartened, and give it up altogether. Every effort should be made to teach them the good points of the different exhibits—a little speech or lecture, or something of this sort, on the day of the show, when the vegetables, &c., are there before them, will probably be found useful to this end.

Two or three years ago the local show of a neighbouring village gave a prize for the "biggest" Potato! (Oh, Paul Neron, H.P.! what a time you would have had if the N.R.S. medals had been given for biggest Roses!) so I issued a counterblast by offering two prizes for "the best (not biggest) round and kidney Potatoes" in our show. The winning tubers were prominently displayed with their cards attached to them, and the cottagers were exhorted to take them as samples for selection.

They have learned, I believe. We had last year fewer specimens shown which were "White Elephants" by nature as well as by name, and I shall not be surprised if the cottagers are well up to the gardeners in the matter of Potatoes on the next occasion.—W. R. RAILLEM.

HAVING a similar difficulty to contend with in our local show as that stated by "Head Gardener," the following rule, irrespective of class, was inserted in the schedules, "No exhibitor to take more than six prizes." Exhibitors knowing beforehand the number of prizes allowed entered accordingly. Following the above rule gave general satisfaction, and a more equal distribution of honours.—T. H. SLADE.



FRUIT FORCING.

FIGS.—Earliest Trees in Pots.—The trees started in November for affording ripe Figs early in May will be forming fresh roots plentifully, the bottom heat being kept steady at about 70° to 75°. Raise the fermenting material to the rims of the pots, and instead of allowing the roots to come over them to ramble unchecked in the fermenting material, place pieces of good turf round the rims to keep the roots near home and to induce sturdier growth. Maintain genial moisture in the atmosphere by syringing twice a day and damping as may be required in bright weather. Admit a little air at 70°, increasing it with the temperature; close at 75°, and if the temperature rise to 80° or 85° from sun heat it will be an advantage. See that there is no lack of water at the roots. The drainage being good there is little danger of giving Figs too much water, many crops being lost by the soil being kept too dry. The temperature in dull weather must be kept at 60° to 65°, 55° to 60° at night when the external air is cold, but 5° higher when the weather is mild. Disbudding will need attention as growth advances and gross shoots are stopped, but the finest Figs are borne upon extensions.

Early Forced Planted Out Trees.—The trees planted in inside borders and started early in the year are commencing growth, and may have the night temperature raised to 55°, 60° to 65° by day from fire heat, with an advance from sun heat and free ventilation to 70°, or even 75°. Syringe twice a day, and see that the borders are thoroughly moistened. If the trees are weak a soaking with liquid manure, not too strong, at a temperature of 85° to 90° will assist the growth.

VINES.—Eyes and Cut-backs.—Eyes may now be inserted, using pots, pans, or square pieces of turf. Select firm well-ripened wood, filling the pot or pan with rich friable loam; insert the buds with a pinch of silver sand, and half an inch beneath the surface plunge the pots, &c., in a bottom heat of 80°. Cut-backs should be placed in a house where they will have a temperature of 60° to 65° at night, and 70° to 75° by day. When they have started into growth shake them out and return to the same size of pot, using good friable loam, and give a rather close and moist atmosphere until re-established, when they should have a position near to the glass, so as to insure sturdy, short-jointed, thoroughly solidified growth.

PINES.—Fruiting Plants and Starters.—These are showing fruit, and should have a mean temperature of 70°, varying 5° according to the weather, admitting air at 80° with sunshine, but do not lower the temperature. Allow it to rise to 85°; close between that and 80°, and if it rise somewhat after closing it will be advantageous rather than otherwise. The plants recently started into fruit will, if in good condition at the roots, produce strong suckers. When the suckers are large enough to handle, all except one to each plant must have the growth checked by taking out the centre. To supplement the autumn potted plants select others which have been wintered in 7 or 8-inch pots, choosing the most vigorous. Those remaining may be reserved until the general spring potting, when they may be shaken out and treated similarly to suckers. Good fibrous loam, with the turf well reduced, placed under cover to become dried, is a suitable compost. Drain the pots well, dust dry soot or wood ashes over the crocks to exclude worms, and ram the soil firmly round the plants, keeping them well down in the pots to admit of copious supplies of water being given when necessary; 10-inch pots are suitable for Queens, and 11 or 12-inch for

those of more robust growth. A temperature of 60° to 65° will be sufficient for these plants, also those potted last autumn, and about 85° bottom heat. Plants in beds about to be started into fruit must not have the heat at the base of the pots over 90° or 95°, or their roots will be injured. If sufficient fruits be started to meet the requirements later successional plants that have not been subjected to a high temperature may be advanced slowly, they with autumn-rooted suckers requiring careful watering, especially where the heat at the roots is supplied by fermenting materials.

STRAWBERRIES IN POTS.—When the plants commence flowering admit air freely, remove the weaker flowers, and when the pollen is ripe brush the flower lightly with a feather. After the fruit is set, thin them to about half a dozen to each plant, more or less according to the variety. Whilst the fruit is setting 50° to 55° will be sufficient heat artificially, advancing to 60° to 65° with sun heat, but after the setting is effected remove the plants to a house with a temperature of 60° to 65° artificially and 70° to 75° by day, supplying liquid manure until ripening commences, then employ water only and sparingly. Whilst swelling they require a moist genial condition of the atmosphere.

Successional plants must not lack water, but needless watering is highly prejudicial, therefore examine each plant and afford a supply only when needed. The plants must not be brought on too rapidly in the early stages, a temperature of 50° artificially is ample. If there be any trace of aphides fumigate moderately, taking care to have the plants perfectly clean before they cease flowering.

THE BEE-KEEPER.

HINTS FOR BEGINNERS.

FEEDERS AND FEEDING.

SYRUP suitable for feeding bees is made by dissolving sugar in about its equal weight of water. When syrup is too thick the bees cannot use it. If the beginner is anxious to feed from a large surface for rapid feeding, let him procure a solid piece of yellow pine the width wanted, and an inch or so narrower than the top of hive from front to back, and about three-eighths of an inch thick. Now prepare and joint at the corners pieces about an inch broad by half an inch thick, and nail this firmly to the sole. One of the pieces is kept three-eighths of an inch lower than the others, which has a groove three-eighths from the top to the bottom to receive a pane of glass. As a resting place of wood is required in the centre for the fountain, two panes of glass become necessary.

The hole to receive the neck of the fountain must be bridged in to prevent bees escaping. The bottom of feeder is filled in with strips of wood a quarter of an inch square, having little pieces an inch long or so, to keep them apart a quarter of an inch. This gives the bees a quarter to rest upon and a quarter to sip the syrup. These short pieces must be three-eighths of an inch deep, so as to leave one-eighth beneath to allow syrup to flow, and prevent bees getting under, as they do when floats are used in deep feeders. I see I have omitted to state that an inner rim should be nailed firmly to the sole three-eighths high. This forms the feeder proper, while the outer one prevents the bees escaping, and admits the glass coverings and space for bees. While this has the advantages of a rapid feeder, the bees are within three-quarters of an inch of the syrup, but is not to be compared to the universal feeder previously explained.

There should be a feeder for every hive, and these, as well as the hives, numbered when types are not at hand. A thin punch about three-eighths broad does well to mark Roman figures on zinc, the raised side being kept uppermost and fixed permanently to the hive and its appliances.

STORING APPLIANCES.

Unless the beginner adopts some method of keeping things in their proper places, and to know where these places are, he will soon get bothered. Whether appliances are kept in presses or boxes, trays should be largely in use. A general index should be fastened to each press or box, or in a book, and each tray should have a note fastened externally, describing each article it contains. Four pieced sections come in handy for little boxes to hold nails, seeds, &c., and I find where seeds have not been thoroughly dried at

harvesting, when kept in tin their vitality is sometimes destroyed, while those kept in wood are good.—A LANARKSHIRE BEE-KEEPER.

THE HONEY PRESSER.

BEING in Glasgow on Friday last I met with a number of gentlemen (readers of the *Journal of Horticulture*) who, disapproving of some other journals in refusing to correct errors, requested me to draw your attention to the following case:—

Notwithstanding the number of public refutations respecting the origin and construction of the honey presser the following appeared in the "British Bee Journal" on January 16th in answer to a query:—"Unless Heather honey is extracted from the comb just before it is sealed it will in anything like a good season be found to set so firm as to render extracting impossible. The late Wm. Raitt invented the honey press to meet the difficulty.—ED."

No less than twelve different persons called my attention to the error, advising me to refute the same by stating facts. One of these letters was from a gentleman who was a judge at the Caledonian Society along with Mr. Raitt, but who adjudicated in different classes. Appended is my reply to the journal in question.

SIR,—My attention has been drawn to an erroneous statement in the "British Bee Journal, &c.," page 36, where it says that "the late Wm. Raitt invented the honey presser." Mr. Raitt did not invent that implement. It has been in use in this country for at least half a century, and up till 1885 or 1886 that gentleman squeezed the Heather honey through his hands. This information in presence of many witnesses I had from his own lips at the Centenary Exhibition of the Highland and Agricultural Society, held at Edinburgh in 1884, where he adjudicated on an exhibit of mine, and had the great pleasure of rejecting it as not being an extractor conforming to the schedule of the Society, an opinion shared by no competent person present. The instructions attached to the implement were faithfully copied, and subsequently appeared in the pages of the "B. K. R." as a help to anyone who would undertake the manufacture; what is now termed the "Raitt Honey Presser," being neither more nor less than a slight modification of the first principles only of the Lanarkshire one. I have always considered that information should be well mingled with truth, and for that reason, perhaps, you will allow space for the refutation of the error.—WM. THOMSON.

The following is the Editor's reply:—"Rait Honey Press.—In last week's issue we spoke of the honey press as being 'invented by the late Wm. Raitt.' Mr. Wm. Thomson of Auchinraith, Blantyre, informs us that he is the inventor of the principle of the honey press, also that he exhibited the press at Edinburgh in 1884. We offer our apologies."

Your readers will readily observe the wide difference between my letter and the apologies. Such a letter, by J. D. McNally, appeared in the "Bee-keeper's Record" some time since, and when laid before a meeting of the Caledonian Society every word was disproved, and the letter characterised "as vile as it was untruthful."

For the benefit of all concerned I will give the facts about the honey pressers as well as their uses and construction, but before doing so may explain that Heather honey, although unsealed, will not yield to any extractor. It sets to an immovable thickness within a few hours after being gathered by the bees.

So far as my own knowledge is concerned I cannot go much further back than fifty years. At that time honey pressers were in use, but were mostly similar to those used for cheese pressing. Nearly forty years ago I had a presser with screw and rack combined. This one, as well as all others I saw, were too wide, much honey remaining amongst the combs, and all too slow in action.

Several persons in Lanarkshire about the same time conceived the idea of a perforated tube or bottomless cylinder, which wrought satisfactorily in pressing the honey from the combs, but the perforations were too large, and it took three to work it satisfactorily—one to cut the combs and fill the tube, while a second rammed it, and the third turned the screw, as it is unpleasant to do this with honey-smearing hands. Then there was another disagreeable move, that of lifting the tin tray to allow the comb to be pressed out. At this point I came upon the scene with improvements, substituting small instead of wide perforations, and a slide which by four movements a person can press the honey and the other work, instead of three as formerly, and this without putting a finger upon the honey. I also put a platform on the cylinder, so that the screw holds it rigid while the combs are being rammed. There are other minor things in connection with it, but which require to be seen to be understood rightly.

The presser is of polished metal, and is useful for other things besides forcing honey from the comb, such as pressing fruit, the juice from herbs, &c., also for crushing melted combs to extract the wax. I also use it for fixing foundations to sections;

for this purpose two pieces of wood are required, and a sole with two kneed pieces of iron, having a hole near the top to receive the ends of a wire crossing on the under side of the upper piece so as to be balanced. The ends of this upper piece are of different sizes to suit two sizes of sections, and have a piece with a tooth formed on front edge to press the foundation one-eighth broad. On the sole there is a thin piece of wood with slots to suit any breadth of section, and on this lies a tongue of tin close to the tooth of the upper jaw to keep the foundation in its place. The operator has only to sit in front of the press and push the section with foundation forward and give the screw a half turn, then fold up the foundation to face of guide. As will be observed, the upper piece being balanced a small article such as a penny placed upon the back part raises the front portion hard to bottom of the screw, which makes the work easy and perfect. This mode of fastening foundations, although termed American, is in reality German, the instructions being obtained through Mr. Alfred Neighbour in 1862.

Some years since I promised to do my best to bring, through the help of an engineer, a suitable cheap presser for bee-keepers, but unfortunately he went out of business shortly thereafter. I have, however, again consulted with a person who has promised to manufacture one as a trial from my patterns, but fear when all the necessary improvements are added the price cannot be less than from 40s. to 50s., but even at that it is a cheap and useful implement no bee-keeper having Heather honey should be without. Many people have been prevented having one through incompetent judges rejecting useful implements, and awarding prizes to useless articles, as was done at a certain show to a presser in imitation of the Lanarkshire one, having by far too weak a screw, and the tube with a bottom, from which the wax could not be taken by any means short of boiling, the Judge in this case believing the statement of the owner that the wax or pressed comb would drop on being inverted!—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Vilmorin, Andrieux & Co., 4, Quai de la Mégisserie, Paris.—*Catalogue of Seeds.*

Kelway & Son, Langport, Somerset.—*Plant Manual for 1890.*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fumigating (C. Dublin).—Your letter is distinctly an advertisement, though perhaps this did not occur to you when writing, and its character is not altered by your having no pecuniary interest in the sale of the article recommended. A genuine article is always worth advertising.

Pea Hurdles (W. L.).—These are used when good sticks cannot be obtainable except from long distances, which of necessity increases their cost, and their speedy decay renders them expensive. Moreover, some owners of gardens prefer the hurdles because of their neat appearance. They were "written about" in our columns a few years ago, and gardeners who have used them are at liberty to write about them again with the object of giving information, and if their communications are suitable they will be inserted. Some persons are satisfied with a row of hurdles on one side of the Peas, running a few lengths of string along the other, and looping them across to the hurdles; others have the hurdles on both sides the rows. It is a question of taste or outlay.

Bitter Seakale (M. C. B.).—When Seakale produces strong crowns, the result of thinning the growths in spring and rich soil, and the blanching material is perfectly sweet; or if the roots are taken up and the growth forced in a dark, sweet, warm house, we have not found the produce bitter when properly cooked; but if the growth is not made in total darkness and sweet surroundings, then the Kale is more or less

unpleasant when served, as it is when permitted to remain long after being cut in a dry place before being cooked. Perhaps the plants in your beds are crowded, and it might be prudent to establish some young plants for producing stronger crowns, not, however, destroying the old prematurely. Sets with bud growths now or incipient crowns planted 18 inches asunder in deep rich soil, and the ground hoed frequently, produce fine crowns by the autumn, but if crowded together in poor dry soil only weak crowns can be expected.

Heating Cucumber House (C. J. H.).—The piping you propose for furnishing top heat—viz., two 4-inch pipes, is not enough, as to maintain a suitable temperature the pipes will require to be highly heated, and heat radiated at a high temperature is not good for the foliage of the Cucumbers. We should advise an extra pipe, or preferably two, whereby you will attain to more satisfactory results both as regards the Cucumbers and economy in heating. Two rows of 4-inch pipes will be sufficient for bottom heat, and we should have them in a chamber not more than a foot deep, and covered with slates, so as to form the bottom of the bed, which should be kept just clear of the hot-water pipes. If you use rubble it should be brought over the pipes to the extent of 6 inches, and it must be covered with a layer of turves to prevent the finer particles of soil passing into it. Both are good plans, but we prefer the chamber. The boiler will certainly be sufficiently powerful for heating the piping you name, also for the additional piping we strongly advise your employing for cultural and economic considerations.

Variation in Pears (J. S. W.).—Your experience is interesting. The two fruits were not only quite dissimilar in shape, eye, stalk insertion (though in this respect one was imperfect), but in texture of the flesh and flavour; yet "they both came from one tree." If a graft or bud has not been inserted at some time the difference must be attributable to "sporting." Similar instances are not unknown, though they are not common. That a Pear tree will occasionally "throw" one or more fruits totally different from the general crop has long been recognised by pomologists, and in some instances the sports have exactly resembled the fruit of another well known variety. The change has been attributed to the influence of pollen, in which the characters of varieties are conveyed, but not always retained unmixed in the tree to which the pollen is transferred. It is singular that the fruit should thus be changed, but it is so, though examples are rare, or are not sufficiently marked to command attention. In such instances as yours the foliage would not be changed, but the seeds probably would, and it does not follow that the same phenomenon will occur another year; if it does we shall be obliged by your sending us more fruits from the sportive tree.

Golden Russet Apple (E. L. B.).—You have been correctly informed in this being a good dessert Apple. It is, in the estimation of many good judges, one of the best, but the tree is not one of the most hardy, and sometimes assumes a stunted habit when trees on the Paradise stock are permitted to overladden themselves in a young state. The following is the "Fruit Manual" description of the variety with the author's note appended:—"Fruit, medium-sized, 2½ inches wide, and 2¼ inches high; ovate. Skin, thick, covered with dingy yellow russet, which is rough, thick, and scaly on the shaded side and round the base, and sometimes with a bright flame of varnished red on the side next the sun. Eye, small and closed, or half open, with erect convergent segments, set in a prominently plaited basin. Stamens, median; tube, conical. Stalk, very short, inserted in an uneven cavity, and not protruding beyond the base. Flesh, pale yellow, firm, crisp, sugary, and aromatic, but not abounding in juice. Cells, obovate; axile, closed. An excellent dessert Apple of first-rate quality; in use from December to March. The tree is healthy and an excellent bearer, but requires a warm situation to bring the fruit to perfection. This is another of our old English Apples. Worlidge calls it the Aromatic, or Golden Russeting, 'it hath no compare, it being of a gold-colour coat, under a russet hair, with some warts on it. It lies over the winter, and is, without dispute, the most pleasant Apple that grows, having a most pleasant aromatic hautgust, and melting in the mouth.' It is called St. Leonard's Nonpareil about Horsham from being grown under that name at Leonard's Lee, near that town."

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (W. H. W.).—As far as we can judge from the out-of-condition specimens, the Apple is the Golden Russet. See reply to a correspondent on the subject.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes, slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. W.).—It is one of the numerous hybrids now introduced in almost every consignment. It is pretty, but it is impossible to give names to all the forms, and it is probable that some rather restrictive rules will shortly be adopted with regard to this matter. (J. E.).—1, Camellia Waratah; 2, Camellia altheaeflora.

COVENT GARDEN MARKET.—FEBRUARY 5TH.

No alteration.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2	0 to 6	Oranges, per 100	4	0 to 9
„ Nova Scotia and			Peaches, dozen	0	0 0 0
„ Canada, per barrel	12	0 20	Plums, ½-sieve	0	0 0 0
Cherries, ½ sieve	0	0 0 0	Red Currants, per ½-sieve	0	0 0 0
Grapes, per lb.	2	0 4	Black „ „	0	0 0 0
Lemons, case	10	0 15	St. Michael Pines, each	2	0 6 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	4	0 to 5	Leeks, bunch	0	2 to 0 0
Asparagus, bundle	0	0 0 0	Lettuce, dozen	0	9 1 3
Bans, Kidney, per lb. ..	1	6 2 0	Mushrooms, punnet ..	1	6 2 0
Beet, Red, dozen	1	0 2 0	Mustard & Cress, punnet	0	2 0 0
Broccoli, bundle	0	0 0 0	Onions, bushel	3	0 4 0
Brussels Sprouts, ½ sieve	1	6 2 0	Parsley, dozen bunches ..	3	0 3 0
Cabbage, dozen	1	6 0 0	Parsnips, dozen	1	0 0 0
Capsicums, per 100	0	0 0 0	Potatoes, per cwt.	3	0 4 0
Carrots, bunch	0	4 0 0	Rhubarb, bundle	0	2 0 0
Cauliflowers, dozen	2	0 4 0	Salsify, bundle	1	0 1 6
Celery, bundle	1	0 1 3	Scorzonera, bundle	1	6 0 0
Colerworts, doz. bunches	2	0 4 0	Shallots, per lb.	0	3 0 0
Cucumbers, each	0	3 0 6	Spinach, bushel	1	0 2 0
Endive, dozen	1	0 0 0	Tomatoes, per lb.	0	6 1 0
Herbs, bunch	0	2 0 0	Turnips, bunch	0	4 0 0

CUT FLOWERS;

	s. d.	s. d.		s. d.	s. d.
Arum Lilies, 12 blooms ..	4	0 to 6	Maidenhair Fern, doz.		
Azalea, dozen sprays	0	9 1 6	„ bunches	4	0 to 9
Bouvardia, bunch	0	6 1 0	Mignonette, 12 bunches	2	0 4 0
Camellias, dozen blooms	1	6 4 0	„ Fr., large bunch	1	6 2 0
Carnations, 12 blooms ..	1	0 2 0	Narcissus (Paper-white),		
Christmas Roses, 12 blms.	0	6 2 0	„ dozen sprays	0	9 1 0
Chrysanthemums, dozen			„ French, 12 bunches	1	6 3 0
„	0	6 3 0	Pelargoniums, 12 trusses	1	0 1 6
Obrysanthemums, dozen			„ scarlet, 12 bunches	6	0 12 0
„ bunches	4	0 9 0	Primula (double) 12 sprays	1	0 1 6
Daffodils, dozen blooms ..	1	0 2 0	„ (single) 12 sprays	0	6 1 0
Epilobiums, doz. blooms	0	6 0 9	Roses (Indoor), dozen ..	1	6 3 0
Eucharis, dozen	4	0 6 0	„ Red „	0	0 0 0
Gardenias, 12 blooms ..	12	0 18 0	„ „ 12 blooms ..	1	6 2 0
Gladiolus (various) dozen			„ Tea, white, dozen ..	1	0 3 0
„ sprays	0	0 0 0	„ Yellow „	3	0 4 0
Hyacinths (Roman) dozen			„ French, per bunch ..	2	0 6 0
„ sprays	0	6 1 6	Spiraea, doz. bunches ..	9	0 12 0
Lapageria, 12 blooms ..	2	0 4 0	Stephanotis, doz. sprays	0	0 0 0
Lilium, various, 12 blms	2	0 4 0	Sweet Peas, doz. bunches	0	0 0 0
Lilium longiflorum, 12			Tabaroses, 12 blooms ..	1	6 2 0
„ blooms	9	0 12 0	Violets, dozen bunches ..	1	0 2 0
Lily of the Valley, dozen			„ French, per bunch	1	0 2 0
„ sprays	0	6 1 0	„ Parme, per bunch	3	0 4 0
Marguerites, 12 bunches	2	0 6 0	White Lilac, Fr., per bunch	4	0 6 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0 to 12	Ficus elastica, each ..	1	6 to 7
Arum Lilies, per dozen ..	12	0 18 0	Foliage plants, var., each	2	0 10 0
Arborvitae (golden) dozen	6	0 24 0	Hyacinths, 12 pots ..	7	0 10 0
Azalea various, per doz.	0	0 0 0	„ (Roman) 12 pots	9	0 12 0
Regonia, various, per doz	4	0 12 0	Lily of the Valley, 12 pots	18	0 30 0
Balsams, per dozen ..	0	0 0 0	Marguerite Daisy, dozen	6	0 12 0
Calceoliums, per doz. ..	0	0 0 0	Mignonette, per dozen ..	0	0 0 0
Christmas Rose	0	0 0 0	„ „	0	0 0 0
Chrysanthemums, dozen	6	0 15 0	Myrtles, dozen	6	0 12 0
Dracena terminalis, doz.	24	0 42 0	Palma, in var., each ..	2	6 21 0
Dracena viridis, doz. ..	12	0 24 0	Primula (single) per doz.	4	0 6 0
Epilobium, per doz. ..	12	0 24 0	Rhodanthe, per dozen ..	0	0 0 0
Eriola, various, dozen ..	12	0 18 0	Saxafraga pyramidalis,		
Euonymus, var., dozen	6	0 18 0	„ per dozen	0	0 0 0
Evergreens, in var., dozen	6	0 24 0	Solanums, per dozen ..	6	0 12 0
Ferns, in variety, dozen	4	0 18 0	Tulips, 12 pots	8	0 10 0



COW AND DAIRY IN WINTER.

ALTHOUGH these articles embrace all kinds of farming, yet they are specially intended to assist the managers of home farms, both large and small. That such aid is required and valued we have ample evidence, and quite recently a case very much in point came under our notice, some particulars of which may be useful to any of our readers in a similar situation.

It was a small place, where the head gardener had entire charge of the garden, land, and live stock, which consisted of three or four cows, a few store beasts, and some pigs and poultry. The land was heavy, and so retentive of moisture that no system of drainage could relieve it of surface water quickly without a total change in its mechanical condition. In such a wet month as January was the surface of the land was sodden with moisture, and decidedly unfit for animals of any kind to be turned out upon it, yet upon

every fine day the cattle were turned out, simply because it seemed better for them than standing in a small enclosure in several inches of mud, for there was no litter used, as all the land was in pasture, and what straw is used must be purchased; there was therefore much exposure of the animals to cold and wet, with the result of two cases of abortion—one by a cow, highly valued for its deep milking properties, the other a promising heifer; a serious matter in any case, but especially so in such a small herd.

Our inspection enabled us to point out certain faults of arrangement and the remedies. The cowshed was so small and badly ventilated as to be quite unsuitable for its purpose. The remedy is a commodious cowhouse with weather-proof walls and roof, roof ventilation, floors of 3-inch Portland cement with a wide gutter and drain, and large separate stalls for each cow. The cows to be kept in and stall fed all the winter, the use of litter to be optional, but thorough cleanliness of floors, divisions, and walls to be strictly observed. A loose box and calf pen to be built outside the cowhouse for down-calving cows, entrance to the loose box only by an outer door, to ensure entire separation from the other cows in any subsequent cases of abortion. A cowyard with an open lodge to be added in due course, but as the locality is so cold and wet, close housing of cows always to be followed in winter. It was also advised that as there was an undue area of pasture for grazing and hay, enough should be broken up for the growth of forage and grain, and that the number of store or fat cattle on the farm should always be subservient to dairy requirements. It did not appear advisable to procure horses and implements for the arable land, which would only extend to a few acres, and could easily and economically be done by neighbouring farmers. No attempt will be made to prepare it for spring corn this year, but it will have the surface pared and burnt when the weather becomes favourable, and then be got ready for next season.

When cows are kept in altogether in winter they should always have a moderate quantity of Cabbages, Carrots, and Mangolds mixed with their food, of which the bulk should consist of the best meadow hay, the coats should be dressed daily with currycomb and brush, and the udders washed before the milking. Much more attention is now paid to cleanliness and comfort in the cowhouse than formerly, in view of the promotion of health, of a well sustained yield of milk, of cleanliness and purity in the milk, and of improvement in the quantity and quality of the butter. The greatest advance in this improvement of practice appears to have been made in Denmark by the Copenhagen Milk Supply Company, which disposes of some 18 tons of milk daily, supplied by farmers whose cows are specially selected and regularly inspected by a veterinary surgeon. The most rigid cleanliness is observed, as well as fixed rules for the dictary, which in summer consists of grass and Clover, and in winter of hay, straw, Oats, Barley, and Carrots; a most wholesome mixture that is quite certain to impart no taint to the milk. But the novel feature consists in a system of filtration through compressed sponges as the milk is delivered, and it is said that notwithstanding all the care taken at the farms to have clean hands, clean udders, clean utensils, the quantity of foreign matter taken up by the sponges from the milk is extraordinary. If this is so, the introduction of the milk filtration into this country is only a matter of time, and till then really pure milk seems out of the question. For persistent effort and thorough painstaking with both milk and butter the Danes are so far unrivalled. The have now a continuous butter show for several months of the year, at which exhibitors have to send fresh samples at intervals of fourteen days, and at other times as the judges may require.

WORK ON THE HOME FARM.

Advantage has been taken of the unsettled weather to procure and mix chemical manures for pasture, the proper quantity per acre being weighed from the mixed heap, and put aside in hags in a dry store house till required for use. With the moderate quantity of soda we use, mixing two or three weeks before use may be done without risk of harm; but when an excessive proportion of superphosphate is used the acid acts so strongly upon soda and potash that if the mixture is not used quickly it

becomes a damp sticky mass, most difficult to use at all. This is a serious matter in any case, but more especially when a large quantity is mixed.

We have some very large barns, which are usually filled with corn sheaves at harvest time. Especial care is taken that all of this barn corn is in thorough good order when carted in from the fields, in order that it may be threshed sufficiently early to render the barns available for other purposes. A barnhead is a capital place for storing chaff, and we have just cut up enough Oat and Barley straw into chaff to last till turn-out time comes, be the spring early or late. We like a little heat in such chaff heaps—it imparts flavour, and renders the chaff more palatable than it would otherwise be. The heating is induced by sprinkling a little common salt among the chaff as it is put into the barn, and by a moderate trampling of each layer. This matter is now out of hand, and there will be an ample provision of horse food during seed time, when a stoppage for chaff cutting would prove a serious matter.

Grass may positively be said to have continued growing throughout this mild winter, and there has been a much less demand than usual for trough food for sheep; but it has been a trying winter for flocks suffering from foot rot, and more care than usual has been necessary to keep this insidious disease down. So far autumn-sown crop look a strong full plant, but there is much risk of early sown Tares losing plant now, and a close watch must be kept, in order that any failures may be made good by early sowings of spring Tares. It is some seven or eight years since we lost the whole of our winter Tares in a mild wet winter, and the loss proved so serious a matter that in order to avoid the risk we have always since then kept hack the sowing till well into October.

OUR LETTER BOX.

Manure for Clover (K. J. A.).—As the Clover is a full plant the land is evidently not Clover sick, but the plant being small and weak shows poverty of soil, for which the proposed dressing of gypsum would certainly not prove an effectual remedy. The prescription given for pasture a fortnight ago would answer perfectly well for it, if only you are careful to keep strictly to the formula, to procure each sort of manure separately from a reliable source and superintend the mixing yourself. We fear you have not done this hitherto, for the failure you mention in 1888 tends to show that you could not have used genuine manures or not applied them at the right time. We have used the mixtures we have so often recommended on light, mixed, and heavy land with singularly uniform success, and are positive that your failure was not owing to the formula. In so wet a summer as that of 1888 good artificial manure was more than usually effective. We used about £400 worth that year at six different farms with excellent results, but then we used pure manures in the right way. Be assured that we never recommend any manures we have not proved to be good, and do not allow anyone to induce you to substitute other manures for those we mention, or you may thus court failure. For example, we recommend muriate of potash, which contains when pure 52 per cent. of potash, often more. Instead of acting upon our advice you allow yourself to be persuaded to substitute sulphate of potash, containing only 44° of potash, and often a great deal less, for it, and then complain of the result. We may remind you that the most economical way of restoring the vigour of your Clover layer is to fold sheep upon the first growth, and then you have the option of turning the second growth (which is certain to be vigorous) to account either for seed or forage. But if you require a vigorous first crop then by all means use the chemical manures, and in doing so on your light sandy soil you ought to be especially careful to use it early, so as to insure that it is dissolved and washed into the soil by the time active growth begins. Last year was an exceptionally favourable one for light land, and had you drilled in chemical manure with the Barley you would not now be complaining of a weak Clover plant.

METEOROLOGICAL OBSERVATIONS.

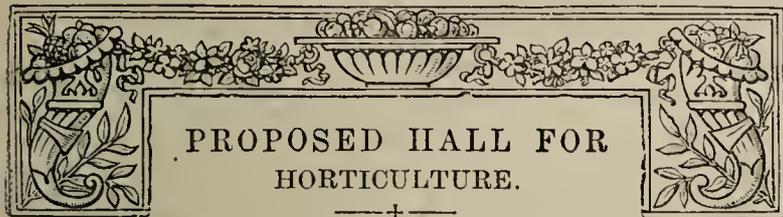
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 99° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
1890. Jan. and Feb.	Inches.	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	In.
Sunday	29.891	49.1	37.3	W.	42.9	51.3	39.4	74.9	33.6	0.108
Monday	29.855	42.1	40.2	W.	42.9	46.4	49.0	81.9	36.2	0.543
Tuesday	29.720	40.6	40.3	E.	41.9	49.8	36.1	59.2	33.9	0.240
Wednesday ..	30.253	34.8	33.1	N.	41.3	42.8	34.4	72.7	29.3	0.058
Thursday	30.389	34.0	37.2	W.	39.9	45.1	33.0	59.3	27.7	0.080
Friday	30.367	47.3	47.2	N.	40.9	50.4	37.7	54.8	34.6	0.010
Saturday	30.314	47.1	46.9	S.	42.4	49.3	46.4	52.2	44.9	—
	30.113	41.5	40.3		41.7	48.3	38.0	65.0	34.3	0.792

REMARKS.

26th.—Bright morning; cloudy afternoon; showery evening; frequent heavy squalls of wind all day.
27th.—Showers early; bright from 10 A.M. till night.
28th.—Very wet from 1.0 A.M. to 11 A.M.; fine with a little sun at mid-day; showery and drizzly afternoon and evening.
29th.—Almost cloudless throughout; solar halo at 3 P.M.
30th.—Fine and occasional sunshine; spots of rain in the evening.
31st.—Dull and drizzly all day.
1st.—Slight fog till 10 A.M., then overcast.
Another warm week, with a considerable rainfall, but much bright sunshine.—
G. J. SIMONS.



AN interesting feature of the meeting of the Royal Horticultural Society on Tuesday last was the proposal of a plan announced by Baron H. Schröder for raising the necessary funds for the acquirement of land and the erection of a building that would not only afford the requisite conveniences for the transaction of the business of the Royal Horticultural Society, but for other societies, including those of a benevolent nature connected with horticulture. The proposal of the Baron is to acquire a fund of £40,000 to be invested in trustees, the interest from the investment of which is to be devoted to meet the demands for ground rent; and a portion of the principal to the erection of a building. The invested sum is to be repaid to the contributors without interest by the annual redemption of bonds.

When a gentleman of the wealth, position, and influence of Baron Schröder initiates a movement of this nature, that fact of itself must inspire confidence, and induce many who are in a position to do so to co-operate with him in carrying it on. There are many persons of wealth who are deeply interested in horticulture who may be expected to willingly invest in the fund to be created for such a purpose when they see that it is being established on a substantial basis.

The Baron's proposal met with a warm reception, and in the course of a few minutes, after the meeting was over, and many gentlemen had left the Council room, spontaneous offerings amounting to £2600 were made towards the object in question. We have obtained the names of some of the gentlemen, with the amounts of their promised contributions:—Baron Schröder offers £1000, Messrs. F. Sander & Co. £200, Messrs. S. Courtauld, N. N. Sherwood, and H. J. Veitch, each £150; Messrs. P. Crowley, T. B. Haywood, Dr. Hogg, C. Mordaunt Matthews, and H. M. Pollett, each £100; Messrs. G. Deal, John Laing & Sons, G. Paul, H. J. Pearson, T. F. Rivers, and Rev. W. Wilks, £50 each; Miss J. Douglas, H. Cannell & Sons, Mr. John Treble, and Messrs. Sullivan, £25 each; Mr. George Bunyard and Mr. Charles Toope 10 guineas, and Mr. Cecil H. Hooper £5. This is evidence of earnestness, and the best beginning that has yet been made by horticulturists towards providing a suitable central establishment in the metropolis that will adequately represent the great and growing art and industry with which they are connected.

Obviously those names only represent a fringe of the horticulturists of the kingdom, and it is hoped the contributions attached to them are a foreshadowing of the realisation of the much-needed and desirable undertaking. The moment seems favourable for the prosecution of an enterprise of this nature. Commerce is expanding, trade is extending, and the Fellows of the Royal Horticultural Society increasing. The great garden-loving community, moreover, is satisfied that the Royal Horticultural Society is pursuing its legitimate functions, and the feeling is practically unanimous that the present London office and hall are wholly inadequate for the purposes of the Society. They were obtained as the best procurable for affording temporary accommodation, and always in the hope that premises of a more suitable nature would be in due time provided. Baron Schröder's proposal appears the most practical that has yet been submitted. It is made at an opportune time, and has been hailed with an unanimity of satisfaction that commends it to the most favour-

able consideration of horticulturists, amateur and professional over the length and breadth of the land; it has the merit also of not imposing on the Royal Horticultural Society any fresh liabilities. It is not promoted by the Society, but for it and under its auspices; and not for it alone, but for allied Societies and all appropriate objects, not the least being those of a benevolent, charitable and prudential character, as represented by existing institutions, which at present are without a recognised home and habitation. Baron Schröder's broad and business-like proposal is commended to the favourable consideration of all who are in sympathy with the object in view.

METHODS OF TRAINING WALL TREES.

PEARS.—After having decided what varieties are most likely to suit the position, still further thought ought to be bestowed upon the selection of the trees. What buyers should stipulate for is medium sized comparatively young trees, and not extra strong overgrown specimens. The latter may fill more space, and even arrive at a bearing state during the first or second season after planting, but they are far from being the best in the end. As an instance we will take a horizontally trained tree with three, or it may be four, pairs of branches. These being very stout, and the side branches somewhat long and rigid, are not easily drawn up together when packed, a proportion of them as a consequence being badly damaged in the transit. The roots also of large trees are not often when received proportionate to the top growth, and the subsequent progress of these trees is usually very unsatisfactory indeed. Younger trees with their more pliable branches are much less liable to injury during their journey to fresh quarters, and being sufficiently well furnished with roots very little check is experienced in their removal, so that they are not long before they surpass the more stunted old trees. It would be an impossibility to me to point out better Pear trees both against walls and in the open than are to be seen at the Cardiff Castle Gardens, and I believe the whole of these were originally planted as maidens. Mr. Pettigrew, the gardener in charge, is, however, an experienced skilful grower, and it is not to be expected that all can successfully emulate what he has done. But if all cannot succeed with maidens, or trees that have had one clear season's growth from the graft or bud, as the case may be, this is no reason why the other extreme should be followed, or much too old trees planted.

Although there are several other methods of furnishing walls with Pears, none is so popular as the good old plan of espalier, or horizontally training, and it is of this system I will first treat. Trees that I have found do nearly as well as maidens are those that have been twice cut down, these being furnished with two pair of branches and a leader. The latter being duly shortened to about 12 inches in length should next summer produce two well-placed side branches and another leader, and in this manner a fresh pair of branches, or even two pair where the summer growth is sufficiently early and firm to admit of the leader being cut back in July every year. If maidens instead of three-year-old trees are planted, these must be cut back to within 4 inches of the stock and side branches, and leaders selected and laid in as advised in the case of the older trees. Supposing either of these young trees are well planted and cared for, they are capable of forming leading shoots from 24 inches to 30 inches long for several summers in succession, the branches and main stem presenting a clean healthy appearance, fruit of the best quality following in due course.

For covering walls quickly there is nothing better than one, two, or three-branched cordons, these being planted so as to bring the leading branches about 15 inches apart. Single cordons can be had by simply ordering maiden trees, any side shoots on these

being shortened back, and the leader laid in to its full length each season till the limit is reached. Two-branched cordons can also usually be formed from maidens without cutting back, the best placed lower branch on the upper side being laid in. This will naturally be weaker than the leader for several years, but will eventually overtake it. Three-branched cordons may be formed by cutting maidens back to within 4 inches of the union of graft with the stock, a central and two side branches being selected and laid in during the next summer. Young trees that have been once pruned, a leader and two side branches being selected and trained, can be bought from any nurseryman who prepares horizontally trained trees, and these are well adapted for training as three-branched cordons. As a rule, cordons succeed best when trained obliquely, the slight depression serving to better regulate the flow of sap than is the case when the branches are trained uprightly. The buttresses of old walls, as well as various archways and numerous blank spaces to be seen on most walls between the old horizontally trained trees, ought always to be furnished with cordons. Not only will the latter give a finished appearance to the walls, but the chances are they will also produce much the finest fruit.

Palmette verriers, which may be described as a combination of the horizontal and cordon systems of training, are not nearly so often seen as they ought to be. It was Mr. Luckhurst, I believe, who first strongly advocated them in the *Journal of Horticulture*, and it is to be hoped many more have given them a trial than I am aware of. Amateurs especially will find them singularly easy to train, the start being made either with newly bought-in small horizontally trained trees or some of the latter already well established, or even maidens may soon be converted into handsome trees. Any number of main branches may be laid in, say about 12 inches apart, the trees being planted so many feet apart accordingly. I consider six main branches a good average number for a tree, especially if the walls are upwards of 12 feet high. The foundation of a tree may be formed in exactly the same way as advised in the case of those horizontally trained, the only difference being that no central branch or leader should be laid in when sufficient side branches are obtained, the latter faring better when there is no leader to absorb the lion's share of the sap. Supposing there are six or more branches, the central pair would be trained 12 inches apart and nearly uprightly, the only curve being near their starting point. The next pair would have to be laid in horizontally, and then trained uprightly at a distance of 12 inches on each side of the central branches, and so on until all are given their proper position. The lowest branches of all naturally have much the greatest distance to travel in a horizontal direction before the points are given an upward turn. A very little examination of the system ought to convince anyone how easily moderately large trees now horizontally trained may be much improved in appearance and character, the sap being more evenly disposed throughout the growth, the lower branches eventually becoming nearly as stout as those apparently more favourably located near the centre. We have received stiff overgrown, then subsequently stunted, trees from nurseries that do not lend themselves to this method of training, and we also object to any with stems more than 9 inches in length. We have also grown good trees from two-branched maidens, and also by cutting down maidens in order to obtain two strong shoots, these being laid in right and left in a horizontal direction to a distance of 30 inches from the stem or centre, and then given an upright turn. The trees being fairly vigorous, depressing causes the branches to break strongly, and from each two well placed shoots are laid in at regular distances, and trained uprightly, a well formed six-branched tree being eventually thus obtained.

Fan-shaped trees are frequently to be met with, and though somewhat irregular, and not always pleasing to the eye, many of them are yet profitable. If the start is made with a well-branched young tree all that is necessary is to lay all the sound branches in to their full length at regular intervals over the wall, young shoots being laid in according as the trees widen and more wall space requires filling. This plan answers well with such strong growers like the Jargonelle, which are not easily trained in a more formal manner. If maidens are planted these must be cut back for two or three seasons, or till about ten main branches are obtained. In each and every case I hold it to be unwise to stop or prune the main branches in any way unless for the purpose of obtaining more in number. Laid in to their full they are more certain to form fruit buds freely and much less wood growth than would result if pruning, however lightly done, were resorted to. Stopping strong shoots is more likely to favour rather than to check their grossness, but early summer stopping of the lateral growth undoubtedly strengthens the weaker leaders. Trees on the Quince stock are the first to become productive, and are the best in all cases where head room is limited, but those on the Pear stock are more constantly

vigorous, and by timely root-pruning can be brought to and long maintained in a productive state.—FRUIT GROWER.

EMIGRATION OF GARDENERS.

(Continued from page 105.)

PROSPECTS.—A competent gardener—namely, a person who has served an apprenticeship under a good gardener, been journeyman or assistant in two or three, and foreman in at least one establishment, and possessing satisfactory testimonials, being of good health physically and mentally, of good education and address, and being furnished with the needful for a start in life, will do well to think twice before emigrating. Our prompter states that those expecting to secure charge of large establishments with a corresponding staff, will find situations affording scope for their energies and abilities very few in the United States of America, the President not employing more than a dozen hands in gardening at the White House, Washington. There are, of course, a few places, perhaps half a dozen in the environs of New York, and others of the older and larger cities, the proprietors being millionaires, where the establishment can compare with good gardening establishments in England. Even places keeping a gardener and two or three assistants are not nearly so plentiful as here. The greater number of situations are single-handed, and single men are preferred, a wife being as much an encumbrance as a large family is to a gardener in England, and the man must be utilitarian—namely, able and willing to attend to cows, pigs, poultry, horse and trap (waggon), making himself generally useful. In brief, the man most in demand from a gardening point of view for private places is a handy fellow that can turn his hand to everything the proprietor requires. Many such are only engaged for the summer months, April to November inclusive, the remainder of the year the gardener is left to shift as best he can. In such places 35 to 45 dols. per month are paid with board. There are no fixed hours of work, the employed must give up all his time from daylight to dark to the service. In winter employment can be had by those not having a permanency at odd jobs or with a florist at 1 dollar per day without board, and generally enough can be earned in winter for making ends meet, otherwise living must come out of the summer earnings. The foregoing remarks apply to all large cities on the Atlantic seaboard from Portland in Maine to Norfolk in Virginia.

It is with a florist that the gardener from these shores can do best in America, and acquire work suitable to the English taste. A good all-round hand can obtain ready employment and good remuneration—namely, 20 cents per hour for jobbing work, which of course applies to the summer months only, as in winter only occasional employment can be relied on. Professional florists can command high wages, and, of course, constant work, but this applies only to those that have become acclimatised, have knowledge and experience of the American florists' *modus operandi* and the ins and outs of trade.

Living is much the same in large cities and their environs as in England, rations being plentiful, good, and cheap; boarding, &c., being rather poor and high priced. Clothing, for better class goods, is high priced, but the Yankee dresses well and makes a point of wearing a thing only so long as it is decent, and then goes in for "spankers." Warm clothing is, of course, necessary for winter, and of this there is an "immensity of shoddy." The summers being hot and long cotton goods are all the go, as something must be had that is light and airy and will wash, as they have to be often changed.

A very large business is done in the large cities, particularly in New York and Philadelphia, in cut flowers. Tea-scented Roses are prized by everyone and grown extensively, as also are Carnations, Bouvardias and Gardenias, bulbs of all kinds, Callas, &c. Palms for decoration are grown largely, Smilax (*Myrsiphyllum*) taking the place of *Adiantum*, which with *Asparagus plumosus nanus* afford the requisite greenery and relief. Coloured foliage is much in demand for decoration, particularly *Ampelopsis Veitchii*. Easter decorations are much in vogue, enormous quantities being grown for that purpose of *Lilium Harrisii*, along with *Spiræa japonica*, *Deutzia gracilis*, and white (Indian) Azaleas. In spring the Violet and Pansy are much appreciated. Pansies do remarkably well, being raised from seed sown in spring and grown in frames during the winter, similar to Violets, in which they are flowered, being highly esteemed for cutting. To summarise, we may say the Americans aim at a good display of flowering and decorative plants in winter under glass, and use them—*i.e.*, Crotons and all stove decorative plants, outdoors in summer, their colours coming out finely under the semi-tropical sun.

Carpet bedding is well, even excessively, done. *Alternantheras* being very bright in colour, also *Coleus*, *Echeverias*, and *Semper-*

vivums doing remarkably well. The attempts at that sort of thing in the London parks are simply "abortions compared with those of Philadelphia." Caladium esculentum was noted as singularly effective, and beds of named Caladiums are fine in sheltered situations. Cannas are much employed. Double-flowered Zonal Pelargoniums do magnificently, being masses of bloom, but the single are seedy. Fuchsias are done well, and are grand. Heliotrope is perhaps finer there than anywhere, and no flower commands more favour or deserves more.

"The "homes" are mostly verandahed, and clothed with climbers, as Passifloras and Honeysuckles; but Vines are the great feature of American "homes." They are used for covering trellises, forming arbours essentially for shade, being accorded every cultural attention in order to have a crop of fruit. American varieties are grown, the European sorts being grown under glass, and are miserable examples. Fruit, however, is not much grown (or forced) under glass. Good early Peaches are grown under glass in pots around Boston, Alexander and Hales' Early being the principal varieties.

Vegetables are much in request, Asparagus being the first in the market, as there are no winter vegetables, except of course roots and preserved. Cauliflower is the most esteemed of early summer vegetables. The seed is sown in heat in February, kept there, pricked off when in rough (second) leaf 3 inches apart, and kept in heat until established, then hardened off in cold frames. When large enough to plant out they are put out in frames in rows 2 feet apart, and 18 inches asunder in the rows. The bed is formed of manure, with 4 inches thickness of loam over it. The plants are protected from frosts and sharp winds, but air is given on all favourable occasions, so as to insure a sturdy growth. The surface of the bed is mulched with cow manure, and the plants well supplied with water and liquid manure. If the plants have a tendency to draw up in the stem, and run to leaf instead of forming heads, a knife-blade is thrust through the stems vertically, to check the growth and induce the early formation of heads. Snowball in an esteemed variety, which comes in early in June. The heads are highly prized and priced, good examples bring 35 cents, and superior often 50 cents. All the seed is imported.

Early Peas are good, and follow Asparagus, the New York gardeners being expected to have with certainty Pears, new Potatoes, and Sweet Corn by the 4th July, as it is Independence Day, the great holiday of the Yankees. Peas are no good in summer, but they are useful in the fall. The "run" in summer is on Lima Beans, the bean being used green, not the pod as here with Scarlet Runner and French Beans, and the Beans are also used when mature. Dwarf and Runner Kidney Beans do well. Haricot Beans are grown for the seed, and the pods pass muster upon occasion of scarcity. Two crops of Cabbages are grown. The first is raised in heat similar to Cauliflower in February and March, but instead of placing them out in frames they are planted outdoors after being hardened. Another sowing is made late in July or early in August, planting out at the end of that month or early September for autumn and winter use. The plants are lifted in early winter, and are stored in dry earth in cellars, all the outside leaves being removed, the heads being available for use through the winter, and keeping them in good condition until spring.

The Lima Bean is tender, not being sown until the second or third week in May, a rather warm and dry situation being chosen, the greatest care being given to keep the seed right side up—*i. e.*, the root downwards. A hillock is raised, placing about half a barrowload of manure to each, covered with sufficient soil to sow the seed in. A stake 8 feet high is placed in the centre of each hillock, the hillocks being 4 feet apart every way. Three or four seeds are placed around each stake, and thinned to two plants; but this is an extravagant plan, though the results are superior to the ordinary method of placing eight to ten beans in the hillocks, which ordinarily are not manured, about 3 inches from the stake, and when showing the runner the plants are reduced to five or six to each hillock. The Beans are highly esteemed when boiled similar to Green Peas, and served with melted butter. When dried the Beans are soaked in water overnight, so as to soften them before boiling.

Squash seed is sown on hillocks 10 feet apart, with half a barrowload of rotten dung to each, just covering with soil for sowing the seeds, three or four being placed in each hillock, thinning to two. Melons and Cucumbers are treated similarly, only the Melon hills are 6 feet apart and the Cucumbers 4 feet. The Melons grown are Cantaloupe, Water Melon, and Citron, the Citron keeping good until Christmas, and as far north as Maine.

Tomatoes are extensively grown, being raised in heat from a sowing made in March, grown on, and strong plants are placed out in May 3 feet apart every way, two or three stems being allowed to each plant, stakes being used in some instances, but generally

not, as the plants grow much more woody and bear up better than in England. Fruit of 1 lb. and over are not uncommon, the red sorts are chiefly grown, the yellow being rare.

Lettuce seed is sown in late August or early September, and good Lettuces are had by Christmas, which keep all the winter, but the ambition is to get good heads in spring, the plants having nice heads at Christmas, affording splendid ones in March and April. The plants are of course grown in frames and protected. A succession is maintained by a later autumn sowing, wintering in frames, and these keep the bowl going until the spring-sown come in. In summer there are no Lettuces, it is too hot and dry.

Celery is grown largely, the ground being heavily manured. A drill is made with a plough at every 3 feet, and the plants placed out 8 inches apart, which is not done until they are large, the tops being cut off, watering well after planting. No attempt is made at blanching until about five weeks before being required for use, and then all at once. Before winter sets in the Celery fit for use is lifted, not retaining any earth to the roots, storing away in sand or dry earth in cool dry place, but safe from frost. For late use the Celery is grown in butts, covered with straw before severe weather 1 foot thick, with boards to throw off wet. There are ventilators along the butts at every 10 feet. The Celery is, of course, earthed before being covered, and it keeps first rate and is used in spring. Radishes are grown in frames for early use, and sown outdoors in spring and fall.

Egg Plants are much esteemed, the fruits being fried, and have a pleasant flavour. The seed is sown in March in heat, pricked off in seed boxes, and the seedlings planted out in May 2½ to 3 feet apart, the ground having been well manured. Capsicums are treated similarly, only planting them 2 feet apart. The pods are used green, sliced, with vinegar, salt, and pepper.

Roots do well, particularly Potatoes, of which there is none better than Myatt's and Early Rose, with Magnum Bonum and Fluke. The fancy sorts are much the same in America as England, things to talk and write about, a kind of "seven-days wonder." Onions do capitally, also Beet, and Carrots with Parsnips. Globe Artichokes are no good, but Jerusalem are particularly fine in crop and quality.—UTILITARIAN.

(To be continued.)

CARNATION SOUVENIR DE LA MALMAISON.

(Continued from page 105.)

THE time for the next layers to be made will be from July to the beginning of September. The sturdiest plants will be produced from those layered out of doors, and at the earliest time mentioned it is advisable to root them in the open. The later will be, however, much better for the protection of sashes. Under these roots are formed very rapidly, care being always taken to keep the soil equally moist, and a little shade from sunshine is also advantageous. The best of these plants grown and repotted until 7-inch pots are reached, produce capital single-stemmed plants, which bloom from spring until the end of summer. Weaklings should be pinched. These are capital for producing big plants, and must be kept growing slowly through the winter, repotting when necessary, and treated to another pinching during summer, when fair-sized plants in 9 or 10-inch pots will reward the cultivator the second year. It may be noted here that two-year-old plants produce better blooms than younger ones do. They are not any larger certainly, but are more compactly built and of better shape.

As to the best compost, I find they thrive very well in one made of one part yellow loam, one part hotbed leaves and flaky leaf soil, and half a part of sand. I never add dung, but feed mainly with superphosphate applied at short intervals as a surface dressing. In potting the soil is not made very firm, and I have found firm potted plants do less well than those which have been less firmly potted. Dryness of the soil is very bad. In a fairly moist condition the soil is alive with rootlets covered with the finest of root hairs, and dryness means the destruction of every one of these at the expense of the quality and size of the flowers and the health of the foliage. One of the great features of Malmaison is the extraordinary size to which the blooms expand, but the largest blooms can be secured only by limiting the number left to develop. A Malmaison in rude health continues to produce fresh crops of buds in succession from the base of the older buds, and if these are left to grow without thinning it is impossible for the healthiest plant to bring any of them out to a large size; it is therefore absolutely necessary to disbud, and the stronger the plant the more disbudding must be done. A good bloom should be about 4 inches across. The biggest I have ever had was exactly 6 inches, but extra large ones are about 5 inches, so that it will be apparent that thinning is as necessary for Malmaisons as for any other flower if big blooms are wanted.

Another great point is to allow them plenty of time. If the plants are forced to spindle up it will be at the expense of size and quality; but if kept merely moving, with plenty air at all suitable times, good blooms may be fairly looked for.

As to what are Malmaisons, it might be thought there would be no question; but that is not so. I have bought at least six spurious varieties, four of which were from the continent. The Souvenir de la Malmaison Carnation is of a blush white shade with a strong clove scent, distinct in foliage, in growth, and in its inflorescence. Of this there is a sport of a rosy pink shade, known as the Pink Malmaison; this is a beautiful variety. The former is catalogued on the continent as "Blanc," the latter as "Rose." There is also a sport from the pink variety named Lady Middleton. This is the pink form with clearly defined blush stripes. I have not seen this in continental lists. During the present winter a Brussels firm has distributed a true sport, with flowers of a vinous red, named Madame Warocqué. This will be an acquisition of the greatest value, and will no doubt become as popular as the other better-known kinds. A fifth variety is in the market; this is named The Witley Court variety. I have not had an opportunity of seeing this, but it is either the pink form, or else very like it in every respect.—N. B.

IMPROVING LAWNS.

I NOTICE in your recent issues a few remarks on this subject. May I, as an ex-farmer, and one who has had some experience in grass land, grasses, and laying down land to permanent pasture, venture to make a few remarks also? I have always treated my lawn in the same way as I treated my grass fields or meadows that I was constantly in the habit of mowing, and I think if people would treat their lawns in the same way they would find my system to be right. A farmer who mows certain fields year after year knows that unless he manures them constantly his stock of hay will become abundant and his land poor; but it never seems to strike the majority of people who have the care of the lawn that if they constantly mow the lawn must eventually suffer. That Daisies, Dandelions, and other weeds will take the place of the finer grasses is a certainty if the lawn is allowed to get in an impoverished condition, for most weeds thrive best on poor soils. It only stands to reason that this must be the case, and if people would feed their lawns in the same way as the farmer feeds his fields, comparatively speaking, instead of a poor yellow-looking piece of turf they would have a green velvety piece of sward.

It is quite useless to sow expensive grasses and Clovers on land that has no virtue in it, the result will only be disappointment and waste of money. But if a good dressing of cow manure or road scrapings is applied to the poor lawn for two or three years consecutively, and after that every other year, you will find the Daisies, moss, and Dandelions disappear, and good grasses and Clovers take their place. I know of no better manure than road scrapings applied in a dry state for the tennis lawn. Sulphate of ammonia, superphosphate, and such like, are only stimulants, and act on poor land like brandy does to the dying man. Soot is a good and valuable manure for the lawn, but it will not make poor land rich, and should be used when you have got your lawn round; and my advice to those whose lawns are in a poor state is, See that they are properly drained and then feed them, remembering that if you reap you must sow, and if you mow you must apply manure.—EX-FARMER.



HYBRID ORCHIDS.

HYBRIDISM furnishes horticulturists with one of the most interesting studies in connection with plant life, and its commercial importance can scarcely be over-estimated, for amongst both useful and ornamental plants skilled hybridists have produced astonishing results. The fact cannot, however, be disregarded that after the exercise of every care and thought in effecting crosses for definite purposes, selection becomes necessary, and much depends upon the way this is performed; keen critical observation must be enlisted in the service of the would-be plant improver, or much of his labour will be lost. A celebrated breeder of dogs was once asked to explain his uncommon success, and he replied, "Oh, I breed a great many and I hang a great many," and the success

of some plant raisers could be summarised in similar terms, as in any experiments there is sure to be a large proportion of seedlings that must be rejected, and the greater the number raised the better the chance of obtaining those worth preservation. Some have succeeded in adding many beautiful novelties to our flowering plants simply by selection from a great number of seedlings raised annually for several years, and by indiscriminate crosses. There can be no doubt, however, that much more may be accomplished by an intelligent and methodical system of crossing than by any haphazard mode of working, and every credit is due to those who within the past quarter of a century have assisted so much in the development of new and improved plants by means of hybridising.

One of the most important matters in regard to this subject is the relative influence of the pollen and seed parents; but though the subject has been treated exhaustively by highly competent observers, the numberless facts are so varied, and indeed so contradictory, that it is impossible to draw up any rules applicable to plants generally. In many cases it has been proved that the characters of the seed parent greatly predominate in the seedlings obtained by crossing with pollen of another species or variety. A skilful and successful hybridist, who has for many years been concerned in the production of florists' flowers, such as Chinese Primulas, Cyclamens, and Cinerarias, gives as the result of his experience that three characters out of every four in the progeny from a cross will be due to the seed parent. This he proved to my satisfaction by reference to records of crosses extending over ten years, and showed conclusively what a methodical plan and continued perseverance can accomplish, for in nearly every case he had succeeded ultimately in attaining his object. Mr. Peter Grieve, who performed good service amongst the variegated Pelargoniums, has stated that in his opinion the constitution of a plant is chiefly due to the seed parent, and he attributes the delicacy of many of the Pelargoniums named to the employment of the plants with variegated leaves as seed bearers. He further says, "The most vigorous and in all respects the best I have raised have been from green-leaved seed parents." This we can easily understand, but my observations teach me that considerably more depends upon what may be termed the individual characters of the seed plant than upon the specific or varietal distinctions. Thus the selection of a strong healthy plant for seed-bearing is likely to give better results than a weakly individual of the same species, whatever the cross may be.

A peculiarity has also been observed that is in a measure confined to the plant world—namely, when a cross has been effected between two species and resulted in the production of seedlings possessing well marked characters, the reverse cross has given practically the same result. This seems somewhat contradictory to the above statement respecting the influence of the seed parent, but it is true, though of course it applies chiefly where the characters of the two parents are nearly balanced in the seedlings. Amongst the Orchids this comes out strongly, and it may be safely asserted that in three-fourths of the hybrids raised little difference is caused by reversing the crosses. Such is the experience of the most successful Orchid hybridist of the present time, and it is the more remarkable when the very strongly marked characters of the majority of Orchids are considered. In some cases there is a predominance of one parent, but they are few, and do not seem to follow any rule.

No family of plants presents so many interesting points in hybridism as the Orchids, and it would be impossible to review them all even briefly in the limit of a paper like this. The subject has also been exhaustively dealt with by such authorities as Mr. H. J. Veitch, which renders it all the more difficult to say anything fresh. But to illustrate some of the chief phenomena in Orchid hybridising I have selected two genera—the *Odontoglossums* and the *Cypripediums*—which have given most diverse results under artificial treatment. First, as regards the *Odontoglossums* we have two curious facts to consider, one is that numbers of *Odontoglossums* are found in a wild state so exactly intermediate in floral form and colouring between other well known species as to leave no reasonable doubt that they are natural hybrids, they have been introduced freely, and have puzzled botanists and horticulturists not a little. The other fact is that notwithstanding this evident variability and tendency to intercrossing in a wild state, the *Odontoglossums* have not yielded to the cultivators' attempts to obtain hybrids under artificial conditions, indeed they have stubbornly resisted all efforts, and have caused more disappointment than any other Orchids. Seedlings have been raised in a few instances, but invariably lost, and the strangeness of this circumstance induced me a few years ago to make some experiments with a view to testing the matter. I had several healthy plants of *Odontoglossums*, and amongst them were six each of two favourite species—*O. Pescatorei* and *O. triumphans*. They were in good condition for

experiment, flowered well, and if a cross could be effected they gave a promise of something worth securing. Yellow forms of the *O. Pescatorei* type had been introduced, and one charming variety, for which Mr. Brownlow D. Knox obtained a first-class certificate from the Royal Horticultural Society on April 13th, 1886, impressed me greatly, and the impression was intensified when the same plant realised £165 at a public auction the next day. There was little doubt that *O. triumphans* or *O. tripudians*, most likely the former, had conferred the yellow colour, and it did not seem too much to expect similar results from an artificial cross. Three of the strongest plants were selected of *O. Pescatorei* and of *O. triumphans*, and two flowers of each were reciprocally fertilised—*i.e.*, the pollen of *O. Pescatorei* was placed on *O. triumphans*, and *vice versa*, thus twelve flowers were fertilised, and to my great satisfaction it appeared to be effectual with nine, for in the course of a week the ovaries were perceptibly enlarging. They were carefully watched, and as they slowly advanced golden visions began to rise of a few thousand yellow flowered plants of *O. Pescatorei*, and these hopes were sustained for nearly six months, when the capsules, which were then well developed, commenced shrivelling, and upon examination were found to contain nothing in the shape of fertile seed.

With the other plants of the two species named a different experiment had been tried—namely, seven or eight flowers were fertilised with their own pollen or with that from other flowers on the same spike, but in only one case was the ovary in any way affected—*i.e.*, where a flower of *O. triumphans* had been fertilised with pollen from another flower on the same plant, and in this instance the development only lasted for a week or two, and the capsule then collapsed as in the previous case. These experiments were interesting as proving what Darwin and others have recorded—namely, that pollen often has the power of affecting the ovary, though it cannot influence the ovules, and cases have even been described where the ovules too have been affected, but no embryo produced. Experiments were tried with several other *Odontoglossums*, but without success, except in one instance, between *O. Cervantesi* and *O. Rossi majus*. A flower of the former was fertilised with pollen from *O. Rossi majus*; on March 29th, 1888, a capsule was produced, which slowly developed and ripened until June 30th, 1889, when it commenced dehiscing. The pod was then removed, and was found to be packed with minute seeds, which when examined under a glass appeared to be perfect. In the course of the following week the seed was sown, and now a few diminutive seedlings are just visible. The reverse cross failed to produce any result, and in any case the seedlings from such parents are not likely to possess any special merit even if they survive, which is doubtful. These experiments are only examples of many others that have been attended by similar results; even Mr. Seden has found his skill of little avail, and yet these beautiful puzzling natural hybrids are being continually introduced. The *Odontoglossums* are certainly very remarkable in this respect, for though they have been employed with many other Orchids the results are invariably the same. Perhaps the most extraordinary part of all is that pollen of some of the *Odontoglossums* has been used to fertilise flowers of *Zygopetalum Mackayi*, every care being exercised to prevent self-fertilisation, yet though seedlings have been obtained they have all been identical with the seed bearer, and I have heard very emphatic language employed with regard to the *Zygopetalum* by disappointed hybridists, who had been waiting in vain for different results.

So much for the artificial attempts to secure hybrid *Odontoglossums*. Now turning to the imported plants we find that the following have fair claims to be considered as hybrids:—*O. brachypterum*, between *O. Pescatorei* and *O. luteo-purpureum*; *O. elegans*, between *O. cirrhosum* and *O. cristatum*; *O. eugenes*, between *O. Pescatorei* and *O. triumphans*; *O. excellens*, of similar parentage, and one of the most handsome yet obtained; *O. Horsmani*, the same parentage as *O. brachypterum*; *O. Murrellianum*, between *O. navium* and *O. Pescatorei*; *O. Schrederianum*, between *O. tripudians* and *O. Pescatorei*, a very distinct and beautiful Orchid (fig. 20); *O. stellimicans*, similar parentage to *O. excellens*; *O. vexativum*, between *O. maculatum* and *O. nebulosum*; and *O. Wilckeanum*, between *O. crispum* and *O. luteo-purpureum*, one of the best of the whole group when represented by a good variety. It is strange that so many show the *O. Pescatorei* parentage, and it frequently happens that they exactly resemble that parent in habit and foliage. Some of the finest of the hybrids have appeared amongst importations of *O. Pescatorei*, and a short time since a flower was sent to me from a plant in an importation of that species with rich yellow sepals and petals and a few dark spots, clearly showing the influence of a cross either with *O. tripudians* or *O. triumphans*.

In direct contrast to the *Odontoglossums* are the *Cypripediums*, as regards the facility of obtaining hybrids under artificial con-

ditions, for nearly half the known hybrid Orchids have been obtained in the genus *Cypripedium*, and their numbers will in a few years be greatly increased. These have been so frequently referred to that it is not necessary to recapitulate what I said last year on the subject. There is one matter, however, which deserves attention, and that is the comparatively few wild forms of the genus which can be ranked as probable hybrids. The only ones that occur to me are *C. Curtisi*, which possesses characters intermediate between *C. ciliolare* and *C. superbians*, and the companions *C. Godefroyæ* and *C. bellatulum*, which present a combination of the chief features in *C. niveum* and *C. concolor*. With these exceptions the majority of *Cypripedium* species known to me are very distinct, or if they show their relationship to some other species, there is no combination of characters, and they might be better regarded as varieties than as hybrids. Yet under cultivation everyone knows we have some most remarkable and charming combinations, not only between pure species, but between them and hybrids, and even between hybrids themselves. Why there should be this great difference between the *Cypripediums* and *Odontoglossums* it is impossible to say, and we can only conjecture that some condition is wanting for the latter, and until that is supplied failure may be expected. A large majority of Orchids are obviously

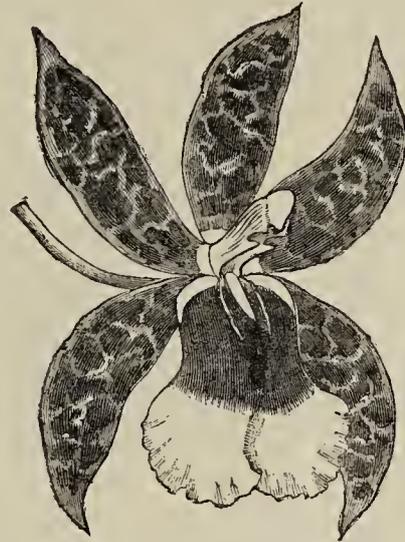


FIG. 20.—ODONTOGLOSSUM SCHREDERIANUM.

specially adapted for cross-fertilisation, and it is difficult to understand why that cannot be as well accomplished in our houses as in the heights of Mexico or South America. It is true that a few Orchids are habitually self-fertilised, especially some of our hardy native species, but the *Odontoglossums* seem wanting even in this power under cultivation. Some of the *Ophrys* and *Orchises* become sterile when transplanted, and one species has been observed to be fertile in one district and sterile in another; but no explanation has yet been offered of these mysterious occurrences, and they must be included with the numberless phenomena which render the Orchids a source of perpetual interest to the thoughtful cultivator.—LEWIS CASTLE.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 11TH.

MANY exhibits of interest were arranged in the Drill Hall on this, the second meeting of the year; Orchids, in which variety, beauty, and good culture were represented; Hellebores in great variety; various early hardy spring flowers; Cyclamens of the first quality; a picturesque assortment of standard, dwarf, and berry-bearing shrubs, with a good collection of Apples. There was also a large assemblage of members, attracted largely, no doubt, by the annual general meeting of the Society, which was held during the afternoon.

FRUIT COMMITTEE.—Present: Sir Charles W. Strickland, Bart. (in the chair), and Messrs. John Lee, A. W. Sutton, P. Crowley, Harrison Weir, R. D. Blackmore, J. Cheal, P. Barr, W. Bates, F. Q. Lane, J. T. Saltmarsh, G. W. Cummins, J. Hudson, J. Smith, G. Bunyard, W. Dominy, Sidney Ford, and J. Wright.

Mr. W. Leach, Albury Park, sent a dish of Ham Green Favourite Tomatoes, cut from plants sown in September, and a cultural commendation was awarded; he also sent large Coldstream Leeks, and was accorded a vote of thanks. Mr. Arthur W. Sutton proposed a vote of condolence with Mrs. Wildsmith on the loss of her husband, who was a valuable member of the Committee, and attended the last meeting. The proposal was seconded by Mr. J. Hudson, supported by Mr. G. Bunyard, and passed unanimously.

Messrs. J. Cheal & Sons exhibited a collection of forty-five varieties

of Apples, consisting generally of large, well coloured, and well kept fruit, for which a silver medal was recommended.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. R. Dean, T. Baines, C. T. Druery, H. B. May, P. Blair, W. C. Leach, R. B. Lowe, B. Wynne, H. Turner, G. Paul, G. Nicholson, F. Ross, W. Holmes, E. Mawley, T. W. Girdlestone, and W. H. Williams.

The exhibits before this Committee were not numerous, and consisted chiefly of the early flowering hardy plants and bulbs. Hellebores were well represented from Mr. J. Douglas, Great Gearies Gardens, Ilford, who had a number of varieties of *Helleborus guttatus* (vote of thanks). Mr. W. C. Leach, Albury Park Gardens, Guildford, contributed a collection of Cinerarias and Violets, the varieties Marie Louise, De Parme, and Swanley White being included amongst the latter. He also had plants of *Azalea obtusa* and *Andromeda floribunda* (vote of thanks). From Messrs. Paul & Son, Cheshunt, came a fresh bright group of hardy plants that were quite spring like in appearance, though some must have had shelter. Hellebores were excellent, as also were the hardy Cyclamens, *C. Coum zonale* (vote of thanks) especially so, and a deep purplish red Hellebore, named *colchicus coccineus* received an award of merit. Irises of the *reticulata* type and Hepaticas were also noteworthy. Messrs. Barr & Son, King Street, Covent Garden, staged some varieties of Hellebores, the brilliant *Anemone fulgens*, and the smaller early Narcissi. Messrs. H. Cannell & Sons, Swanley, sent plants of *Primula sinensis* Swanley Pink, a single variety with exceptionally large substantial flowers. The St. George's Nursery Company, Ealing, had a group of well grown Cyclamens, compact in habit, and bearing large flowers (bronze medal), and Messrs. C. Lee & Son, Hammersmith, supplied a tasteful group of ornamental shrubs, amongst which *Aucubas* in fruit, Hollies, *Euonymus*, and Ivies formed the leading features.

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq. (in the chair), and Messrs. F. G. Tautz, F. Sander, F. Moore, Lewis Castle, J. Douglas, E. Hill, C. Pilcher, W. B. Latham, J. Dominy, H. Ballantine, H. M. Pollett, S. Courtauld, De B. Crawshay, J. O'Brien, and A. H. Smee. The display of Orchids was a surprising one, for at this time of year, and in such unfavourable weather, it is too much to expect that either amateurs or nurserymen will risk the exposure of their treasures. Happily, however, it seems that a desire exists to assist the Society, and increasing confidence in the Orchid Committee has apparently induced more exhibitors to submit their novelties to the judgment of the members. We do not remember seeing so many Orchids at any February meeting held by this Society. The whole of those shown cannot be particularised, but some of the best are included amongst the plants for which first-class certificates or awards of merit were granted, and are described at the end of this report. Messrs. J. Veitch & Sons, Chelsea, had a small group of hybrid Orchids, chiefly consisting of *Cypripediums*, representing the results of crossing *C. Spicarianum* with *C. villosum* and *vice versa*. The hybrid thus obtained was named *C. Lathamianum* a few years since because it first appeared in the Botanic Gardens at Birmingham under Mr. Latham's charge, but it has since been raised by others, and it was shown on this occasion from several sources. It was curious to observe that in both crosses the results were practically identical, the flowers varying somewhat in size and depth of colouring; but the chief difference was observable in *C. Calypso* from the same cross, with the exception that *C. villosum* Boxalli had been used as one of the parents instead of an ordinary *C. villosum*, the result being that more colour was infused into the dorsal sepal. *Phalænopsis* F. L. Ames from P. amabilis and P. intermedia Portei was represented by a small plant bearing several neat and pretty flowers, while another hybrid—*Dendrobium Wardiano-japonicum*—from the two species expressed in the name, had a good deal of the latter parent in the flowers, which were, however, a little larger, and there was a deeper coloured blotch in the centre of the lip.

Mr. O. Thomas, Chatsworth Gardens, sent spikes of *Cœlogyne cristata* with seven and eight fine flowers each (vote of thanks). From E. A. Roberts, Esq., Woodland House, Greenhithe (gardener, Mr. J. Simon), came two varieties of *Lycaste Skinneri*, one named *Reginæ* (award of merit), having rich crimson petals and lip, the other having larger flowers and a white lip, and *Cymbidium eburneum* had three of its handsome pure flowers (vote of thanks). The Right Hon. Lord Foley, Ruxley Lodge, Esher (gardener, Mr. Miller), showed a healthy well-flowered plant of *Cœlogyne cristata* (vote of thanks). H. M. Pollett, Esq., Bickley, had a plant of the interesting hybrid *Cypripedium Germinyanum* (certificated), an excellent variety of *Cattleya Trianae* and *Odontoglossum crispum* bickleyense, with large yellowish flowers heavily spotted with brown (vote of thanks); also a plant of the superb *Cypripedium Elliottianum*, which secured a unanimous certificate.

Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, exhibited another of the attractive hybrid *Dendrobiums* which have been raised in his collection. This was named *Aurora*, but the parentage was not stated, though there seemed to have been some of the *D. moniliforme* characters. The flowers are of neat shape, the sepals and petals white tinted with purple, with a narrow blotch in the centre (vote of thanks). M. S. Cooke, Esq., Kingston Hill (gardener, Mr. D. Cullimore), had a group of Orchids, comprising *Cattleyas*, *Odontoglossums*, and *Dendrobiums*, well grown, and bearing good flowers. A. H. Smee, Esq., The Grange, Wallington (gardener, Mr. Cummins), sent several interesting Orchids, amongst which *Odontoglossum ramosissimum* (certificated) attracted much attention. *Cattleya Trianae* Dayana was also finely

represented (vote of thanks), and the peculiar deep-spotted *Masdevallia leontoglossa* (botanical certificate). W. Vanner, Esq., Camden Wood, Chislehurst, showed a group of Orchids, including *Dendrobium nobile* Cooksoni, *Odontoglossum Jenningsianum* superbum, *Lycaste Skinneri* alba, with ten pure white flowers, and *Cattleya Trianae* varieties, one named *Mariæ* being notable for the rich colour of its lip (vote of thanks).

An extremely fine specimen of the useful old *Cypripedium insigne* came from H. S. Smith, Esq., Silvermere, Cobham, Surrey (gardener Mr. Quarterman). The plant was fully 4 feet in diameter, and had eighty-seven large flowers. A cultural commendation was deservedly awarded for this admirable example. Mr. Waltham, Streatham Hill, sent flowers of *Cœlogyne cristata* (vote of thanks), and G. Arbuthnot, Esq. (gardener Mr. Mitchell), Bridgen Place, Bexley, showed *Cattleya Trianae* varieties and *Odontoglossum Andersonianum* (vote of thanks).

CERTIFICATED PLANTS.

Cypripedium Elliottianum (H. M. Pollett, Esq.).—A grand acquisition amongst the *Cypripediums*, one of the *C. Rothschildianum* type, but distinct and very handsome. The sepals and petals are straw coloured or pale yellow, the dorsal sepal broad, oval, and with narrow maroon stripes radiating regularly from the apex to the base. The petals are long and tapering, spotted with maroon, especially at the base, the lip being after the *C. Stonei* style, and somewhat similar in colour.

Cypripedium porphyrochlamys (F. G. Tautz, Esq.).—There is something peculiarly fresh and pleasing in the colouring of the flowers of this hybrid, an uncommon violet purple hue suffusing the whole flower. The dorsal sepal is roundish, deeply veined with purple and edged with white; the petals are long, purple at the tip, and spotted with the same colour at the base on a lighter ground. The lip is well proportioned and of a soft purple tint.

Cypripedium Germinyanum (H. M. Pollett, Esq., and Messrs. J. Veitch & Sons).—A remarkable hybrid possessing very bold floral characters, distinguishing it amongst all those hitherto raised. It was obtained from a cross between *C. hirsutissimum* and *C. villosum*. The flowers are nearly 6 inches in diameter from tip to tip of the petals, which much resemble *C. hirsutissimum* in shape and colour. The dorsal sepal is very large and is green, with brown veins and markings, the lip suggesting *C. villosum* in shape.

Cypripedium Lathamianum (C. L. Ingram, Esq., Baron Schröder, F. G. Tautz, Esq., and Messrs. Veitch & Sons).

Though this has been shown before a certificate had not been awarded, as it was not considered sufficiently distinct. On this occasion it came from four exhibitors, that from Mr. Ingram being by far the best. It is the result of a cross between *C. villosum* and *C. Spicarianum*, and partakes nearly equally of the characters of the two species. It was described and figured in this Journal, page 175, February 28th, 1889.

Cypripedium cardinale, Vanner's variety (W. Vanner, Esq.).—A hybrid between *C. Sedeni candidulum* and *C. Schlimi*, with white sepals and petals, and a pink tinted lip. It is in the way of *C. cardinale*, but of lighter colour (award of merit).

Odontoglossum ramosissimum (A. H. Smee, Esq.).—A charming species that has been too long neglected, though it is not often seen in such fine condition as Mr. Smee had it. The sepals and petals are white, heavily dotted with bright purple, and are much undulated at the margin, the lip being similar. The flowers were borne in a large panicle, and the plant was strong in habit.

ANNUAL MEETING.

The annual meeting of the Royal Horticultural Society was held in the Council Room, 117, Victoria Street, Westminster, at 3 P.M., Sir Trevor Lawrence, Bart., M.P., being in the chair. There was a large attendance, and a very cordial and hopeful tone pervaded the meeting. The Secretary (the Rev. W. Wilks) read the minutes of the previous meeting and the names of upwards of fifty candidates for fellowship, who were subsequently elected.

The CHAIRMAN rose to make some remarks on the report. He thought that all who had taken the trouble to read the report had reason to be satisfied, and that the direction in which the Society was moving would recommend itself to every Fellow. The conferences had attracted a considerable amount of competition, although all present knew how difficult it was to secure an adequate response when prizes were not offered. The support from the public had not been satisfactory, and Chiswick did not appear to be a good place for holding those meetings. If held in a good and more central position there would probably be a better attendance than at present. With regard to the usefulness of the trial work at Chiswick, he would instance Tomatoes, in which a very large number of varieties had been reduced to about thirty. The Society still found themselves obliged to have shows, &c., at the Drill Hall. Inquiries had been made, but they had not been able to find a better place, although they had long felt that the present one was unsuitable for the exhibition of rare and valuable plants. However, the Council hoped soon to place before the Society a practical scheme for a horticultural hall. (Cheers). Baron Schröder would give information on this subject, and it would be greatly due to him if the project were carried to a successful issue. He (the Chairman) would also like to refer to the various lectures that had been delivered at the meetings. These had all been delivered by the most competent men in the several departments, and it would be impossible to over-rate the value of their services. He would say one word as to the Temple Show which had been a great success. There was a very fine display of plants

and Orchids, and they had every reason to hope that they would again have a show this season even better than that of last year. He referred to the more regular publication of the Journal of the Society. In former years country Fellows had complained of getting so little for their money; since the publication of the Journal they had received many letters expressing pleasure in it. One of their papers had been read before the Nantes Horticultural Society, and a discussion had taken place upon it. The Secretary and Treasurer had rendered valuable aid in editing this Journal, and he thought it would be impossible to have two more energetic, judicious, and in every respect, admirable officials. (Cheers). The library, which was open to all the Fellows, and was frequently consulted, had been placed in proper order. After referring to some items in the accounts, in the course of which he alluded to the improvements which had been effected at Chiswick, the Chairman concluded by expressing his deep sense of the loss the Society had sustained by the death of Professor Reichenbach, the Rev. M. J. Berkeley, Rev. J. T. Boscawen, and Mr. W. Wildsmith, whose places it would be very difficult to fill.

BARON SCHRÖDER then rose to give a preliminary sketch of the scheme by which they proposed to raise money and devote it to the building and maintenance of a hall of horticulture. Ever since the Society had left South Kensington they had, he said, been looking about for a suitable place, and though they had secured temporary premises the Society could not possibly remain as it was. A small Committee had been appointed to consider the matter, and the first question that arose was, How to raise the money? The second, How to obtain a site? It was agreed that if outside friends, as well as the trade, would provide a good sum of money—£30,000 or £40,000—a site could soon be obtained. This money, which would be lent by the Society's supporters, these receiving no interest upon it, would be invested in three trustees, and the interest upon it would insure the ground rent that would be required. They would then erect a hall, library, &c., and rooms suitable for the use of the Royal Horticultural Society and for special societies and institutions, for which rent would be paid. Moreover, if the hall were in a good position it might be let for various purposes without detriment to the Society. He did not think it desirable at present to make a definite statement as to the probable site, but he would add that they had one in view in one of the best positions in London, and which would be passed by the majority of persons going to and fro into the city. A love of flowers was undoubtedly increasing in the city, and he thought that if business men found pleasure in visiting shows they would soon decide to pay an annual subscription and enter them when they pleased. He (the Baron) felt most confident in the success of the scheme; so much so that he was prepared to give a considerable sum of money towards it, to form one of a Committee for working out the scheme, and, if the Society desired it, to become one of the trustees of the money. (Cheers.) If some such course was not adopted he thought the Society would decline. A turn for the better had now come, Fellows were increasing in number, and now was the time to get the Society a permanent home.

THE CHAIRMAN formally moved the adoption of the report, and Dr. Hogg, in seconding it, referred in terms of warm approval to the efforts that were being made to lift the Society into a better position, and to Baron Schröder's endeavours to formulate a scheme for providing it with a suitable home. No one, he said, was more competent to give advice on such a matter as this, which, in fact, was a small affair compared with many of the financial undertakings in which the Baron was engaged. He (Dr. Hogg) could now see daylight ahead in the affairs of the Society, and was delighted to observe the turn for the better that had taken place.

Dr. MORDAUNT MATTHEWS also spoke in support of Baron Schröder's suggested scheme. He would, he said, gladly offer £100 himself, and he had no doubt many other Fellows would subscribe.

Other gentlemen spoke in approval of the progressive policy of the Society.

Mr. D. MORRIS (Treasurer) in reply to a question respecting the affiliation of local horticultural societies, stated that the members of the Chiswick Horticultural Society (which was specially referred to) were admitted to inspect the Chiswick trials on payment of an annual sum, and also held a Show in the Gardens. Similar terms could no doubt be conceded to other societies, but the majority were too far away to find it convenient to avail themselves of such an arrangement. He also referred to the increased expenditure on postage. This had been necessitated by the regular issue and distribution of the Society's Journal. Formerly it had been handed to Fellows on application at the office; now copies were regularly posted to all subscribing Fellows. The clerical expenses of the Society had been much reduced, a result largely due to the energy of the Secretary. (Cheers.)

The report having been submitted to the meeting was unanimously adopted.

The election of officers was then proceeded with. Messrs. E. A. Hambro, N. N. Sherwood, and Martin R. Smith were elected to fill the three vacancies on the Council caused by the retirement of Messrs. J. R. Bourne, W. Coleman, and A. H. Smee. Sir Trevor Lawrence, Bart., M.P. was elected President, Mr. D. Morris Treasurer, the Rev. W. Wilks, M.A., Secretary, and Messrs. G. Deal, W. Richards, and H. Turner, Auditors.

A hearty vote of thanks to the President, Treasurer, and Secretary brought the meeting to a close, the proceedings terminating with bright auguries for future success. It may be added that as a result of Baron Schröder's suggested financial scheme, a subscription was opened towards

the close of the meeting, and a sum of £2600 was raised in the course of a few minutes.

DISEASE OF TOMATOES AS CAUSED BY FUNGI.

DURING the last few years many garden plants, including Tomatoes, have been badly attacked by so-called new species of fungi belonging to the genus *Cladosporium*. These species, described by botanists as new to science or new to this country, are very much alike in general appearance—in fact, they are so much alike that possibly no one could distinguish between them unless the names of the host plants were known beforehand. In the majority of instances leaf fungi are named after the plants on which they most frequently grow—in fact, the habitat is too often the very feeble foundation for the establishment of the species. This plan, as adopted by botanists, of giving specific names to leaf fungi is as bad as if all Buttercups found in chalky fields were called by one specific name, all in loamy fields by another, and all found in peaty fields by a third.

When seen upon the supporting leaves, and even under the microscope, there is often no difference whatever to be detected in some so-called species of microscopic fungi (as in *Puccinia*), and no botanist, however talented or imaginative, could name the fungi unless advised beforehand of the name of the plant upon which the fungus grew; for instance, a dozen microscopic preparations of so-called species of *Puccinia* might be forwarded for naming to a

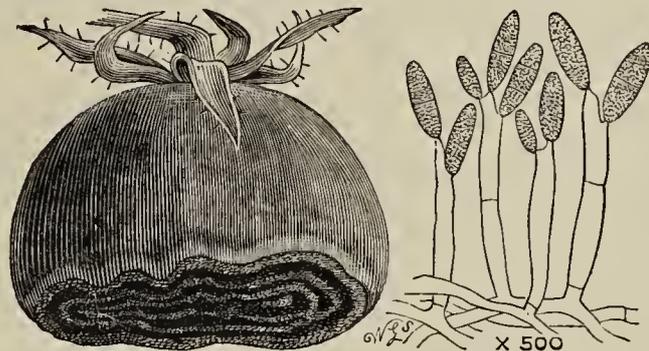


FIG. 21.

DISEASE OF TOMATOES AS CAUSED BY *CLADOSPORIUM LYCOPERSICI*.

scientific authority, and no botanist would be able to give a specific name to a single example, or to distinguish one from the other. In this respect it will be seen that many microscopic fungi resemble many florists' flowers. If a specialist receives the name of the plant on which the fungus was seen he will then name (almost without examination) the specimens. The more puzzling species of fungi (as when two or more species of one genus grow upon one host plant) are named vexans, obscura, perplexans, inconspicua, &c.

There is a good deal of vexans, obscura, perplexans, and inconspicua about the Tomato fungi, as most gardeners by this time probably know. There is a very common microscopic fungus found on foliage of all sorts, named *Dactylium roseum*. It more or less covers the leaves on both sides with a fine pinkish-white powder, and to the unaided eye is not unlike the mildew of Vines, save in its very faint colour. Of late years this fungus has been far too common, and sometimes its growth upon Tomato plants has been profuse. This *Dactylium roseum* has a twin brother named *D. lycopersici*, chiefly so named because it grows with luxuriance upon Tomatoes.

Tomatoes have of late been flooded with fungi, for which new names have been invented. Some of these are without doubt very old friends with new names. For instance, there is a new *Sphaeronegma lycopersici*, and a new *Sporocybe lycopersici*, a new *Cladosporium lycopersici*, a new *Macrosporium lycopersici*, and (for a slight change) a new *Macrosporium tomati*—all new forms, and peculiar to the Tomato if a student can only bring his mind to believe it. The Potato fungus sometimes grows upon the Tomato plant; when it does so it is not given as our old acquaintance *Peronospora infestans*, but *P. lycopersici*.

The fungus most worthy of attention when growing upon Tomatoes is the destructive parasite known as *Cladosporium lycopersici*. This fungus causes the decay of the fruit. It begins with a minute black spot, which surrounds the small decaying style. The black spot gradually increases in size by new circles of growth, one beyond another in the style of fairy-rings. The fungus growth at the same time flattens the apex of the fruit, till at last the whole substance is blackened and entirely destroyed by the *Cladosporium*. The fungus spreads from the leaves (as I believe), or from one fruit to another, till at last leaves, stems, and fruits are all alike rotten. A small illustration is here given (fig. 21) natural

size, of a half destroyed-fruit, and a view of the assailing fungus which has been named *Cladosporium lycopersici*, enlarged from the microscope 500 diameters.

The brown spores of this *Cladosporium* are often produced in such enormous numbers upon both sides of the foliage that they fly from the leaves in millions. If the Tomato foliage is briskly touched, a cloud of spores will taint the air and be distinctly perceptible in the mouth and lungs if they are inhaled.

But it would appear that *Cladosporium lycopersici* is not the only species which makes black spots upon Tomatoes, for Dr. Cooke has described a *Cladosporium fulvum*, which also causes black spots upon Tomato fruits. An ordinary human being might suspect these two fungi to be the same, and an ordinary botanist, on examining the published illustrations, might be able to see no difference between the two. Certain fungus-men will not however have it so, and one bold fungus-man has even had the temerity to suggest the existence of even a third species. On second thoughts, however, the latter gentleman modestly christened his would-be species a mere variety under the pretty name of *Cladosporium fulvum violaceum*. Whether all these wretched little fungi are quite the same with, or a trifle different from, each other, does not matter the toss-up of a button. It is sufficient for ordinary mortals to know that Tomatoes are attacked by a *Cladosporium* of some kind which grows upon leaves and fruit alike, and kills both. The fungi we are discussing are named *Cladosporium* because the supporting stems of the spores are (or, rather, should be) branched, from *klados*, a branch; but the fungus of Tomatoes is not branched, neither is the typical engraved species of *Cladosporium* in "Cooke's Handbook," but a considerable amount of unmitigated scientific botany is unfortunately got up in this style.

Let the botanists settle amongst themselves whether the Tomato fungus is a *Cladosporium*, a *Helminthosporium*, a *Macrosporium*, or a *Heterosporium*, or any other kind of "sporium," so long as they do not pester the poor inoffensive growers of Tomatoes with long-winded names and descriptions. It is all heterosporium (*heteros*, variable) to the writer of these lines.

Of late years liliaceous and even orchidaceous, and other plants, including garden Carnations, have been badly attacked by *Cladosporium*. The devastation caused of late by these attacks is certainly remarkable.

Most of the Tomato fungi are in their earlier stages quite superficial, so that if remedies are applied in good time recovery seems to be possible. Experiments with remedies must be made and repeated and reported upon by practical growers. Many recipes and suggestions have been printed of late in the *Journal of Horticulture*.—WORTHINGTON G. SMITH, *Dunstable*.



EVENTS OF THE WEEK.—There are no special horticultural events on record for this week, but the usual auction sales will be held of Orchids and bulbs at Cheapside and King Street, Covent Garden. The Royal Society meets to-day (Thursday) at 4.30 P.M., the Quekett Club on Friday, at 8 P.M., and the Society of Arts on Wednesday, February 19th, at 8 P.M.

— AT the annual general meeting of the ROYAL HORTICULTURAL SOCIETY, held on February 11th, Sir Trevor Lawrence, Bart., M.P. President, in the chair, the following ladies and gentlemen were elected Fellows of the Society—viz., R. W. G. Baker, W. Balchin, Thos. Bate, Thos. Bate, F.S.I., the Countess of Bective, Samuel Bennett, J. H. Wright Bishop, the Rev. Canon Bliss, A. H. Bond, A. T. Bourke, F. A. Browne, Jas. Brown, Miss G. Carter, Miss Ellen M. Chute, Alex. Crossman, C. W. Dalbiac, B. W. Duffield, Rev. W. Elwin, Mrs. Fleming, W. Garton, A. H. Griffiths, J. C. Grinling, W. Hibberdine, Mrs. Hollowell, Mrs. H. T. Lambert, Miss Marie Lowe, Jas. Marson, S. W. Marten, R. W. T. Morris, Lady Musgrave, Alex. Overend, E. H. Oxenham, F. C. Paule, J. W. Pimblett, J. Prestwick, W. Ransom, Mrs. W. Rivington, G. H. Sage, H. E. Simonds, Henry Sowter, Rev. J. Tillard, H. W. Underhill, — Wakefield, Alfred Warner, Eustace Wigram, Alfred Wilson, John Wood, Percy T. Wrigley, T. W. Wellington, Captain Jekyll, R. J. Collier.

— THE WEATHER in the Metropolitan district has been colder during the past few days, easterly and north-easterly winds being

accompanied by frosts of 4° to 8°. The days generally have been bright, Saturday, Sunday, and Monday particularly so, and scarcely any rain has fallen.

— WEATHER IN THE NORTH.—The unseasonably mild weather up to the 5th inst. has been followed by five days of welcome frost, ranging from 7° to 10° on the morning of the 9th. Especially dense hoar frost and heavy fogs have occurred, but some days have been beautifully bright. Farmers have been able to push on operations delayed by the previous rainy weather.—B. D., *Perthshire*.

— TURNER MEMORIAL PRIZES.—We are informed that the following prizes are offered by the trustees for the year 1890:—National Tulip Society. Exhibition to be held at Manchester. The date not yet fixed. For six distinct seedling Tulips, three rectified and three breeders—first prize, 30s.; second prize, 20s. For twelve distinct named Tulips, six rectified and six breeders—first prize, £3; second, £2; third, £1. At the Tibshelf Horticultural Society's Exhibition the following prizes are offered for Roses—viz., for twenty-four cut Roses, distinct, amateurs only—first prize, £5; second, £3; third, £2. At the autumn Exhibition of the Royal Horticultural Society, Edinburgh, September 10th and 11th, twenty-four Dahlia blooms, distinct, Show and Fancy varieties—first prize, £5; second, £3; third, £2.

— THE CRYSTAL PALACE SHOWS.—The schedule of the usual series of shows at the Crystal Palace, Sydenham, is issued, and contains liberal provision for plants, flowers, fruit, and vegetables. The first or spring Show is fixed for Saturday, March 29th, when bulbs and forced plants will constitute the chief features. On Saturday, May 10th, the summer Exhibition will be held, forty-six classes being provided, thirty-two open to all exhibitors. Specimen, show, and greenhouse plants, Orchids, Ferns, Pelargoniums, cut flowers, and floral decorations will form the leading features. The National Rose Society's Exhibition has been previously announced for Saturday, July 5th, and only the regulations are inserted. A Fruit Exhibition will take place on Friday and Saturday, September 5th and 6th, the customary substantial prizes being offered for collections of fruit, Grapes, Peaches, Plums, &c. October 9th to 11th are the dates for the hardy fruit Show, when Apples, Pears, and vegetables are largely provided for, while the Chrysanthemum Show is announced for November 7th and 8th, £25 being offered in four prizes for forty-eight cut blooms.

— MESSRS. WM. WOOD & SON, Wood Green, London, N., send us an excellent sample of ORCHID PEAT, of which they say they have a large stock. It is one of the best samples we have seen, and is admirably adapted for Orchid culture.

— GARDENING APPOINTMENT.—Mr. A. Waters, gardener for the past five years to John Eccles, Esq., Farington House, Preston, and formerly foreman at Norris Green Gardens, has been appointed gardener to Captain Hopwood, Hopwood Hall, Middleton, Manchester.

— WE are requested to announce that the International Exhibition of Geographical, Commercial and Industrial Botany and of Microscopy which was to be held at Antwerp this year cannot, owing to unforeseen circumstances, take place in 1890, but will be opened next year.

— MESSRS. JAMES VEITCH & SONS send for our inspection an assortment of Primula blooms, which in size, substance, and diversity—including the purest and richest colours—are distinctly meritorious. In all those respects such Primulas would have been thought impossible only a very few years ago.

— NO doubt the CATERPILLAR PLAGUE was brought about in some measure by cutting down old hollow trees throughout the country, destroying the nesting places of tomtits, which feed their young on small caterpillars, and so disturbed the balance of Nature. As a remedy I propose small boxes, flower pots, or cocoa-nut shells with holes just large enough for the tits, or sparrows will take possession. If plenty of these were hung in gardens and orchards, the tits would soon increase. But I fancy I hear someone say, "They eat my Pears." Well, all I can say is, Net them.—J. DEDNAM, *Much Hadham*.

— MR. A. HARDING writes:—"The WEATHER here (near Peterborough), has been mild, with occasional frost and snow: 15° has been the lowest recorded. The Aconites and Snowdrops were unusually early, are now getting over; but on the sunny rockery, Primroses, Violets, Crocuses, Hepaticas, *Omphalodes verna*, and even *Narcissus bulbocodium citrinus* is in bloom, with a few other things. American

Wonder Marrow Peas sown in the middle of November on a south border, look as healthy and hardy, 2 inches high, as William I."

— **LETTUCE VEITCH'S GOLDEN QUEEN.**—This will be found an excellent Lettuce for forcing. On January 9th last year we sowed seed of it in 6-inch pots, and placed them on a shelf in a vinery just started. On February 7th they were planted in a frame on a slight hotbed 6 inches apart, and on April 1st we began cutting capital little Lettuces. Perfect Gem treated in the same way, but planted 9 inches apart, was ready April 16th, thus forming a good succession.—J. H. W.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst., at 7 P.M., the following papers will be read:—"Observations on the Motion of Dust, as Illustrative of the Circulation of the Atmosphere, and of the Development of certain Cloud Forms," by the Hon. Ralph Abercromby, F.R.Met.Soc.; "Cloud Nomenclature," by Capt. D. Wilson-Barker, F.R.Met.Soc.; "An Optical Feature of the Lightning Flash," by Eric S. Bruce, M.A., F.R.Met.Soc. Capt. Wilson-Barker's and Mr. Bruce's papers will be illustrated with lantern slides.

— **BLENHEIM ORANGE TOMATO.**—"J. E. T." writes from Cumberland:—"I have grown this Tomato for two years, and consider it the most deliciously flavoured variety in cultivation. I have tried nearly every advertised variety, and find that there is not one can hold a candle to it for flavour. The plant is robust, and the fruit sets freely." Blenheim Orange is, we believe, the result of a cross obtained between Dedham Favourite and Green Gage in Messrs. Carter & Co.'s experimental grounds at Forest Hill.

— **GAS-HEATING HOUSES.**—Gas being such a convenient means of heating boilers for warming greenhouses, perhaps more particularly for amateurs (but I am not sure even if it is so limited), it has often occurred to me that if an automatic arrangement could be designed by which the tap regulating the supply of gas was controlled by some kind of thermometer, it would be a great boon, as it would prevent the great variation of temperature which so often occurs. It is just possible such a system as I now suggest has been already tried, but I have never seen any notice of anything of the kind. Are any of your reapers aware whether or not it has ever been attempted with or without success?—C. S.

— **MR. G. HILTON**, The Gardens, Smithills Hall, Bolton, writes:—"I send you the rainfall for 1889 taken here; I thought it might interest you. You will observe that the total fall is greater than in 1888, although the early part of the summer was drier and warmer than in the previous year. Dry June was followed by a heavy fall in July and following months, which brings up the total. On the whole it was a better summer, and vegetables succeeded much better. The total for each month is given in inches. January 2.25, February 3.22, March 2.89, April 2.37, May 3.74, June 0.64, July 4.51, August 7.89, September 5.52, October 3.64, November 2.37, December 5.43; total for 1889, 44.45. Total for 1888, 40.32. Rain fell on 188 days in 1889.

— **VICTORIOUS POTATO.**—In my notes on new vegetables I mentioned as the best successor to the Ashleaf Potatoes Laxton's No. 1. I have grown this for two seasons and found it a great cropper, fit to dig about ten days after the Ashleaf, floury and of fine flavour when dug. I am much taken with this Potato, and wrote highly of it twelve months ago in the Journal, but I was under the impression that it was an old Potato, as I had not seen it in any list. Mr. Laxton now writes me that it is his new Potato Victorious, so being unknown to many I thought it well that intending purchasers should know how well pleased I am with it as Laxton's No. 1. I may add that I am indebted to Mr. R. Gilbert for sending it and five other varieties to me two years ago, and out of the six Victorious and Bouncer are the only two survivors, for I have discarded the other four.—H. S. EASTY.

— **A CARGO OF CATS.**—There has just arrived from Alexandria at Liverpool, by the steamer "Pharos" (says the *Daily News*), a consignment of nearly 20 tons of cats, numbering 180,000 feline species, taken out of an ancient subterranean cats' cemetery discovered about 100 miles from Cairo by an Egyptian fellah, who accidentally fell into this cats' cemetery, which he found completely filled with cats, every one of which had been separately embalmed and dressed in cloth after the manner of Egyptian mummies, and all laid out in rows. Specimens of these have been taken by Mr. Moore, Curator of the Liverpool Museum, where they can be seen. In ancient times the Egyptian cat was buried with all honours, but those consigned to Messrs. Levington & Co. of

Liverpool, after being purchased in Egypt at £3 13s. 9d. per ton, will be used in this country as manure. The Curator of the Liverpool Museum fixes the date of their interment 2000 years before Christ.

— **THE LATE MR. WILDSMITH.**—It was with deep regret that I read in the columns of the Journal an account of the death of Mr. Wildsmith of Heckfield. My first interview with him was about eighteen months since, when he came for a few days to this establishment for the benefit of his health. He visited me several times on that occasion, and I shall ever remember his genial disposition, kindly remarks, and the sound practical advice he gave to me at that time. My sympathy is with all who are bereaved through his decease.—W. GABBITAS, *Gardener, Hydropathic Establishment, Harrogate.*

— **DRACENA LINDENI.**—This makes a fine exhibition plant, and has great value for general decorative work, being especially useful for single specimens in vases. It is of recent introduction, and does not differ in its growth from the *D. fragrans*, but the broad arching leaves of green are beautifully ornamented with a wide margin of creamy yellow, which gives to the plant a very attractive appearance, and places it in the front rank of variegated plants. It is propagated easily by the usual method of layering or cutting up the canes; but to make good specimens, fit for exhibition purposes, the heads alone must be used, and these with care will make a fine crop of roots in a few weeks without the loss of a single leaf. *D. Massangeana* makes an excellent companion plant for the foregoing, only differing from it in that the variegation runs through the centre of the leaf instead of along the margin.

— **THE WEATHER IN JANUARY.**—January was very mild, excepting the 1st, 2nd, and 3rd, on which days the frost was moderately severe. Strong winds prevailed during the greater part of the month up to the 26th, on the afternoon of which day the wind blew almost a hurricane, accompanied by a heavy downpour of rain. Rain fell on twenty-five days, the heaviest daily fall occurring on the 26th and 27th, on which days 0.32 and 0.31 inch fell respectively. Snow fell on two days, but did not lie long. Highest shade temperature, 56° on the 25th; lowest, 20° on the 2nd; lowest on grass, 19° on the 2nd. Number of days at or below 32°, in shade eleven, on grass nineteen. Barometer very variable; highest reading, 30.55°, at 9 P.M. on the 29th; lowest 28.80° at 9 A.M. on the 23rd. Garden spring running twenty-two gallons per minute, January 31st.—J. TUNNINGTON, *Ketton Hall Gardens, Stamford.*

— IT is with regret that we announce the death of MR. JAMES MCINTOSH, who for twenty-nine years—up to 1868—served the late Duke of Buccleuch as head gardener at Drumlanrig Castle. He died February 4th at the advanced age of ninety-four. He was born at Abercairny, in Perthshire, where his father was head gardener. He was brother to the late Mr. Charles McIntosh, author of "The Book of the Garden," and James McIntosh went from Archerfield while Charles was at Dalkeith, and it is rather singular that David Thomson went from Archerfield to succeed him while William Thomson, his brother, was at Dalkeith. The subject of our notice has lived retired near Dumfries for the last twenty-two years, and until within the last year took great interest in his garden, and attended to his plants as a recreation. He was of very retiring habits, and never took much part publicly in horticultural matters. During his service at Drumlanrig many important works were carried out, and he was very much respected by the noble family he so long served.

— **FLOWERS FROM LLANDUDNO.**—Recently I received a box of cut flowers, all grown, without the least protection of any kind, in my garden, near Little Orme, Llandudno. They comprise—Snowdrops, about 300 blooms, Winter Aconites, about thirty blooms, sweet-scented Violets, 300 blooms in twelve bunches, Tea-scented Roses, about 100, mostly with young foliage and healthy buds in various stages of development, Mignonette and Wallflowers in plenty, Anemones, five distinct varieties, Pear blossom, two bunches, Stocks, several trusses in various colours, Oxlips and Cowslips, several trusses of each, Primroses and Polyanthus, sixty blooms and trusses, various colours, Scabious, German varieties, forty blooms in fine condition, various colours. These were a great surprise to me, as my plants at Stakchill, from the same seed, were cut down in October. Antirrhinum and a few other odd flowers. I am familiar with the vagaries of the Primula family, such as Auriculas, Primroses, Polyanthus, Oxlips, and Cowslips; but for such a collection, so plentiful in quantity, so fine in condition, and so widely varied in class, to be cut from the open part of one garden in January, is unprecedented

in my experience, and deserves noting. The Tea-scented Roses with their buds and foliage were especially beautiful.—SAMUEL BARLOW, *Stakehill, near Manchester.*

— DEATH OF MR. GEORGE W. YOUNG.—This name will be recognised as that of a recently elected pensioner on the Gardeners' Royal Benevolent Institution—a pension he has not lived to receive. He was a most earnest, competent, and industrious gardener, as expert in growing specimen Heaths and hardwooded plants as in producing high-class Grapes and vegetables. Mr. Young was for several years gardener to the late Viscount Barrington at Beckett House, Berks, and subsequently became gardener to the late Duke of Buckingham at Stowe. While at Beckett he perhaps grew the fickle but beautiful *Lisianthus Russelianus* better than it has been seen elsewhere, some of his specimens bearing from 500 to 700 handsome blooms. After leaving Stowe he went into business, but lost rather than gained by the change, and eventually returned to work in nurseries and gardens. His zeal and cultural ability appear to be inherited by his sons, three of whom are head and two under gardeners. Of the former, Mr. Arthur Young is gardener to W. Jones, Esq., Abberley Hall, Stourport; Mr. William Young gardener to Captain Winthrop, Barton Court, Berks; and Mr. Henry Young gardener to Captain Fisher, Ingerwood, St. Lawrence, Isle of Wight. Of these sons it may be remarked that three of them are subscribers to the Gardeners' Royal Benevolent Institution, and the other two have taken steps to follow their good example. Mr. Young died on the 4th inst. in his sixty-third year, and was interred in the old parish churchyard at Fulham on Monday last.

— WE are requested to insert the following note:—"A Society of FRENCH GARDENERS in England was some time ago formed, with the object of establishing cordial relations between the gardeners in France and their English *confrères*. The results obtained up to the present are highly satisfactory. Believing that many English gardeners are desirous of sending their sons to the Continent to learn different modes of culture, &c., while we know that many French nurserymen and gardeners are equally desirous of sending their sons to England, we decided in our last meeting to proceed by way of exchange. The Society would thus undertake to place in France an English young man, provided that someone would take in exchange a young Frenchman. The office of the Society is 27, Gerrard Street, Shaftesbury Avenue, where all communications should be addressed." [This Society is worthy of the attention of young British gardeners who desire to obtain Continental experience.]

— THE WEATHER IN JANUARY.—Mr. J. Mallender sends the following summary of meteorological observations at Hodsock Priory, Worksop, Notts, for January, 1890.—Mean temperature of the month, 42.0°. Maximum on the 6th, 56.4°. Minimum on the 2nd, 21.0°. Maximum in sun on the 25th, 96.1°. Minimum on grass on the 2nd, 18.1°. Mean temperature of the air at 9 A.M., 40.3°. Mean temperature of the soil 1 foot deep, 39.7°. Number of nights below 32°, in shade seven, on grass eighteen. Total duration of sunshine, forty-seven hours, or 19 per cent. of possible duration. We had eleven sunless days. Total rainfall, 2.44 inches. Rain fell on twenty days. Average velocity of wind, 15.6 miles per hour; velocity exceeded 400 miles on thirteen days, and fell short of 100 miles on two days. Approximate averages for January:—Mean temperature, 37.5°; sunshine, thirty-five hours; rainfall, 1.71. A very mild and stormy month, only two falls of snow and they soon melted.

— THE KEI APPLE, *ABERIA CAFFRA*.—An Australian paper has the following note:—"As many Mildura settlers have at different times made inquiries as to the value of the Kei Apple as a hedge plant, this account may be of use: The Kei Apple is a large shrub or small tree, furnished with strong, straight, long spines, and rather small obovate leaves. The fruit is round, 1 inch or more in diameter, lemon coloured, of an agreeable sub-acid flavour, considered by some to be a desirable fruit for preserves; in an unripe state it is used for pickling. For preserves the ripe fruit is recommended to be used in combination with Pumpkin or Pie Melon, giving an agreeable acidulous piquancy. The plant is one well suited for hedges, for which purpose it must be raised from seed, as it does not strike readily from cuttings. Baron von Mueller says the plant resists severe drought, but bears only a light degree of frost."

— CABBAGE PLANTS CLUBBING.—Most gardeners have had to deal with clubbing in the cultivation of the Brassica family, so for the benefit of those who have not yet found a remedy I give a few

hints as to a method which I have found very efficacious. The ground being deeply trenched and liberally manured, I make the drills and place in 3 or 4 inches of wood ashes (obtained by burning all the hedge clippings, &c.), and then replace the soil. The plants are then put in with a dibble 2 feet apart. After they have started into growth I apply to each a small handful of the Manchester manure, which I find to be very stimulating to vegetables, I also make it a practice to run the hoe amongst them weekly. I have used quicklime and also gas-lime, but not with such good results as those obtained from the ashes. I use the ashes as much for their fertilising qualities as for the prevention of club root, but quicklime has hardly any fertilising qualities that I am aware of. Since following the foregoing method I have not been troubled with club root.—W. J. B.

— BIRMINGHAM GARDENERS' ASSOCIATION.—At the fortnightly meeting held on February 4th, Mr. Henry Deverill, Banbury, sent some of his newer varieties of Onions, which were much admired. Mr. Burdon, gardener, Moseley, sent a collection of Potatoes of high-class quality, amongst them some of Messrs. Sutton's seedlings sent to him for trial, and some of their newer varieties—viz., a very fine seedling white kidney, Sutton's Prizetaker, Abundance, and Satisfaction; and their Seedling 152, a very promising first-class variety. Amongst round varieties were Sutton's Best of All, and their Seedling 151, a very promising flat round; and Sutton's Nonsuch, very fine. The Dean and Woodstock Kidney, with other sorts, were in good character. Mr. Gardiner, Harborne, sent about forty kinds of English and American Apples. Mr. Latham, the Botanic Gardens, showed Camellias and flowers of a South African greenhouse shrub, *Toxicophlœa spectabilis*. Mr. Cooper, The Gardens, Highbury, sent handsome specimens of *Cyclamens Veitch's Charming Bride*, *atrosanguineum*, of a rich dark colour, and a seedling feathered form pure white, distinct and novel. Mr. F. Denning, florist, contributed some fine white *Cyclamens*; and Messrs. Hewett & Co., nurserymen, some excellent forced *Narcissus*, General Gordon, Maximus, and Henry Irving; and selected blue and rich dark red *Primulas*, both very fine in character.

— In reference to the request on page 46 of your Journal, No. 2155, dated 16th January last, I give you, although somewhat late, a list of the French works on the MANUFACTURE OF SUGAR FROM BEET, writes M. E. Schaettel. "Traité Théorique et Pratique de la Fabrication du Sucre, Guide du Cbimiste-fabricant." Par Horsin-Déon, price 25-francs. "La Fabrication du Sucre." Par H. Pellet et G. Sencier, price 10 francs. "Traité Théorique et Pratique de la Fabrication du Sucre." Two vols. in 8vo. Par Maumené, price 55 francs. "Traité Complet de Fabrication et Raffinage du Sucre de Betterave." Par L. Walkhoff, translated by Méryot et Gay-Lussac. Two vols. Price 20 francs. "Guide Pratique du Fabricant de Sucre." Three vols. in 8vo. Par Basset, price 30 francs. "Guide Pratique des Fabricants de Sucre." Par Leurs, price 7 francs. "Guide du Fabricant de Sucre Indigéné, Contenant l'Extraction et l'Epuración du Jus de Betterave." Par Possoz, price 4 francs 50 cents. "Manuel Pratique de la Fabrication et du Raffinage du Sucre de Betterave." Par Gautier, price 3 francs. "Progrès Accomplis dans la Culture de la Betterave et dans la Fabrication du Sucre." Par Leplay. First part, 1884-1887, price 2 francs 50 cents.; second part, 1887-1888, price 1 franc 50 cents. These books may be had at the office of the "Suererie Indigéné," 10, rue de Louviers, Paris. Messrs. Vilmorin-Andrieux & Co. have just issued a small interesting pamphlet on sugar Beet seeds, which may be had, free of charge, by applying to the firm.

— THE "Botanical Magazine" for January contains coloured plates and descriptions of several plants, but one deserves special attention—viz., *HELIAMPHORA NUTANS*. This is one of the *Sarracenia* family, a native of British Guiana, and related to *Darlingtonia* and *Sarracenia* in a somewhat interesting manner. Sir Joseph Hooker says—"Viewing the relations between these three genera to one another, the question naturally arises whether to regard *Heliampora* as a degraded or as an ancestral member of the order. I incline to the latter view, though it points to the surmise that the order originated in a region now separated by upwards of 2000 miles from that inhabited by any of its other members, in so far as their distribution is known. Possibly, not probably, other *Sarraceniaceæ* may exist in the little known mountain regions of Venezuela, though such may not be expected to occur in the volcanic areas of Central America and the West Indies. It remains to add that *Heliampora* was first re-found by Burke, an English Orchid collector, in the Roraima district in 1881, who brought plants of it to Messrs. Veitch & Sons; and that in 1884 Mr. im Thurn collected it on the occasion of his reaching the supposed inaccessible

summit of Roraima. In his account of the botanical collections which he made during that expedition (Trans. Linn. Soc. Ser. 2, ii. 263), he mentions *Heliampora* as growing 'in wide spreading very dense tufts in the very wettest places, where the grass happens not to be long. The red-veined pitchers, its delicate white flowers raised high on red-tinted stems, its sturdy habit of growth, make it a pretty little picture wher-

comfortable position to an exposed one where a stone wall would hardly be weather-proof, yet I know of a very handsome pair of *Araucaria imbricata* that have been transplanted and doing well up in the Derbyshire hills, and I would rather risk this than see fine specimens cut and mutilated into disfigurement because they have overgrown the positions they were originally intended to fill instead of being removed to more roomy quarters. But the question may arise as to how these ponderous



FIG. 22.—TREE-MOVING MACHINE.

ever it grows. But it attains its full size and best development, not down in the swamp, but up on the ledges of the cliff of Roraima, and even on the top (about 8000 feet).” The pitchers, which are exactly like leaves with the outer edges folded in and connected, are green on the outer surface, with reddish spots and markings, the inner surface being reddish brown.

TRANSPLANTING LARGE TREES.

A FEW large trees and shrubs are indispensable in making a new or altering an old place. An astonishing effect can be produced with them that could not otherwise be produced in a lifetime. They not only add antiquity to the scenery, but comfort to the surroundings. Unsightly objects can be quickly and effectively hidden with a screen of large trees, thus transferring the objectionable into the beautiful. Although I do not advocate the practice of taking a delicate tree from a sheltered

living giants are to be successfully shifted. There are many contrivances intended for the above purpose, but I know none so good as the simple machine invented by Mr. Barron of Elvaston, fig. 22. This was first used here about the year 1830, and has been in constant use ever since with the greatest success. The inventor of it writes:—“In the year 1831 I transplanted a Cedar of Lebanon 43 feet high and 48 feet in diameter of branches. The stem of this Cedar, which at that time was 2 feet in diameter, is now more than 10 feet in circumference and a picture of health and vigour. A tree 72 feet high was moved more than two miles in an upright position. Yews from six to eight hundred years old have been successfully moved long distances. Oaks and Larches from 40 to 50 feet high have been moved in the middle of summer without losing a leaf. Large Spruce and Silver Firs on the limestone formation have made shoots 18 inches in length the second year after removal.”

It may not be out of place to mention here a famous old Yew near Dover that was successfully moved a few years ago by this veteran tree

shifter. Although some hundreds of years old it has made more growth since it was moved than it did for some years previous. I will now endeavour to write a brief description of the working of these simple machines that may be a sufficient guide to enable the ordinary intelligent novice to use them efficiently. I will take for example a tree of 8 or 10 tons. First mark out a square shaped space about 8 by 10 feet, dig out the ends first to a depth of 2 feet 6 inches, then burrow right under the centre of the tree for the purpose of inserting a strong centre plank capable of carrying the whole tree, when this is inserted under the bole of the tree with about a foot projecting out each end for the purpose of hooking the looped end of the winding rope on. The sides may next be dug out and the end planks inserted under the bole across the centre for the purpose of carrying the side planks which are the next to be fixed. These planks should be 6 inches longer than the mass to allow corner chains to be fastened. These prevent the tree swaying while being conveyed to its future position. If the tree has a long journey or the soil of a loose nature the sides will require supporting with straw and boards bound together with ropes similar to a cooper hooping a barrel. Should the tree be very tall guy ropes are needed to hold it in an upright position. These should be fastened to the tree as high as possible at right angles to enable four men to steady it while being moved, or they may be fastened to each corner of the machine, or both may be required in windy weather. The tree will now be ready for the machine, which is taken in two parts. The hind portion may be first put into position ready to receive the side beams, which are attached to the front limber part of the machine. When the machine is put together the tree will be in the centre. Ratchet rollers are placed across the beams, one each side of the tree, and a double rope for winding. When these are in position and the loop end of the rope hooked on the centre plank, winding may be commenced steadily. Strongslings chains with a ring at one end and hook at the other are fastened to the side beam passing under the centre plank and hooked on the other side, and gradually hitched up as the tree is lifted as a safeguard in case the winding gear gives way. When high enough to clear the ground, the chains may be fastened and the rollers slackened a little so that each chain takes an equal bearing. The principal weight is carried by the sling chains and centre plank. The hole must be filled up level and planked over or the machine will be difficult to get over the loose soil. If planks can be laid the whole distance, and horses cannot be used, men can move an immense weight, or pulleys can be brought into requisition. A square hole with the ends made slanting for the wheels to pass down may be dug with a furrow at the bottom for the centre plank to rest in, to prevent it getting fastened when the tree is lowered into its position.

The machine has to be taken to pieces as before when all the planks are removed. The furrow at the bottom must be firmly packed with earth to make a solid, flat foundation for the tree to rest on. When all is filled in the whole may be thoroughly soaked with water if necessary, and a lofty tree will require supporting with guy ropes or wire—especially in exposed positions—until fresh roots are made and the soil gets solid. It is a good plan to mulch fresh planted trees; it is much better than using too much water. There are several different sized machines, which may be hired of Mr. Barron, Borrowash Nurseries, at moderate cost, with both experienced men and the requisite appliances, or I believe machines are made to order and sold by that firm.—J. H. GOODACRE.

GLOXINIAS.

THESE easily grown plants have been so greatly improved of late years, both in form and colour, that a packet of seed from a good strain may be relied upon to produce superior varieties. Although natives of tropical America, they may be grown to perfection without subjecting them to a high temperature, and although usually found in the stove they can be grown in an ordinary greenhouse, provided they are carefully watered and shaded with due ventilation, but they must be sheltered from draught, as nothing seems to have a more baneful effect upon them than direct currents of air. The best Gloxinias I have seen were grown by an amateur friend of mine on a shelf placed in the apex of his span-roof greenhouse. He had plenty of plants in 6-inch pots last year carrying between thirty and forty splendid blooms and as many buds at the same time, and the plants, with their large healthy leaves, were pictures in themselves without the flowers. This amateur took the Gloxinia in hand three years ago, and has each year produced examples that has taken the conceit out of at least one gardener. He pots his plants into three-fourths sandy loam, the other part is made up of peat, sand, and charcoal; but this is not a compost I should feel safe in recommending the tyro, for I believe very few would succeed with it. Of course the plants will not grow so fast in a greenhouse, but their leaves are of great substance and their flowers very durable.

The seeds of Gloxinias are extremely small, and great care is necessary in sowing them. The pots or pans should be well drained and filled within one inch of the top with equal parts peat, sand, and cocoanut fibre, and this compost should be thoroughly mixed by passing it several times through a half-inch sieve. Press it into the pots moderately firm, and make the surface level by shaking a little of the soil through a very fine hair sieve, after which give a good watering through a fine rose. In about two hours the pots will be ready for the seed, which should be sown regularly and thinly, and a very little soil shaken through the hair sieve to cover the seed, but care must be taken not to bury it deeply. The seeds will germinate in a temperature of 60°, but

if the pots can be plunged in a hottom heat of 70° it will hasten germination. Place a pane of glass over the pot, also a little moss over the glass, until the seed germinates, when it should be removed and the seedlings gradually exposed to more light and air, but no direct sunshine.

If the soil in the seed pots becomes dry it must not be watered in the ordinary way, or three parts of the plants may be lost, but stand the pots in warm water not quite deep enough to rise through the soil to the surface. Let no anxious beginner disregard these apparently trivial matters, for much good seed is lost every year and condemned as worthless through careless or improper management, and as a consequence many a honest seedsman has been branded with a bad name. The greatest care, patience, and skill are required with the young plants, and trivial neglect, that would be unnoticed at a later stage, may prove fatal here. Place other pots of soil prepared as advised for the seed into the same house to warm, and when the seedlings have two leaves prick them off singly, or if they have come up thickly in bunches about 1 inch apart. This is always a delicate operation, and necessitates having the soil on the surface very fine and level. Do not attempt to lift them with the fingers, but first make a dent in the soil of the pan, and with a stick or cedar pencil transfer a plant or bunch of plants into the dent, and carefully press the fine soil round it. When all is complete give a sprinkling of warm water through a fine rose, and place a pane of glass over the pan until the plants start into growth again. As soon as the leaves touch each other prick the plants off again about 3 inches apart into pans or boxes. All those pricked off in bunches should be carefully separated, and the plants may be sorted in sizes, some of which may be large enough to place into thumb pots; but we find them succeed best in pans or boxes until they have grown into large plants—indeed, unless wanted in pots they may be flowered in boxes the first year. For greenhouses and staged conservatories they are undoubtedly most useful in pots; hence before becoming crowded they should be placed into pots, ranging from 3 inches to 5 inches according to the size of the plants, using a compost of peat, leaf mould, light sandy loam, and sand in equal parts, with a sprinkling of powdered charcoal and honemeal. The pots must be well drained, and the soil pressed in moderately firm. Sudden checks should be carefully avoided, or it may induce them to throw up a few flowers before the plants have attained any size, but after each shift they should be kept close and warm until they take to the new soil, after which give them more air and plenty of light, but always shade from direct sunshine. Watering must be carefully attended to, as if Gloxinias become dry or too wet the leaves may turn rusty, and the plants be stunted. When they get into this unsatisfactory condition they are seldom any good until rested and repotted.

Some fine varieties are sure to appear amongst seedlings from a good strain, and these the grower will be anxious to increase. Gloxinias are easily propagated, and if the stock plants can be placed in a strong moist temperature a large quantity can soon be worked up. Spread a layer of fibre or half-decayed leaves over the bottom of boxes or pans, then pack the bulbs closely together and cover them level with the crowns with equal parts fibre and sand. Place them in a temperature not less than 70° in a somewhat subdued light, the object being to produce cuttings by elongating the growths instead of forming short-necked crowns, as they would do if given plenty of light and room. When growths with three joints are produced cuttings should be taken immediately below the second joint, thus leaving one joint on the stock plants for the production of future cuttings. Dibble the cuttings into well drained pans, using fibre and sand in equal parts, with a layer of sand on the surface. Bottom heat will facilitate the rooting, but it is by no means essential, as if placed in a temperature of 70° they will root in a fortnight. If wanted for growing into flowering plants treat them as soon as rooted the same as advised for seedlings, but if more cuttings are required treat them as the stock plants. In this way a large quantity may be worked up from a very limited stock. Those who have not sufficient heat and convenient places at command must resort to the slower process of increasing their stock by leaves. Cut off a few of the oldest leaves with about half an inch of the petiole attached and insert them round the edges of 6-inch pots, hurrying about half an inch of the blade, when in time a bulb will form at the extremity of the petiole. A more economical way with large leaves is to make incisions about half an inch apart along the primary vein, then firmly peg the back of the leaf to the soil. Leaves treated thus should not be kept too wet or close, or they may decay before bulbs are formed. If properly managed, however, bulbs will form at every incision, and these, after the leaves have decayed, should be gathered from the soil and stored in dry sand for another year in a temperature not lower than 55°.—J. H. W.

BOUVARDIAS.

MUCH of Mr. Bardney's advice on Bouvardia culture, page 12, is sound and reliable; yet those who have grown large quantities of these plants may question the wisdom of some of the treatment advised. For instance, he says, "It is a good plan to adopt a two-years system of raising plants," and he advocates the practice of crowding a number in a box for a season, for no other reason than to obtain a stock for the following year. Unless space is so very limited that an early start is impracticable, I question the utility of this for two reasons—viz., waste of time and opportunity, and because fine plants can be grown and flowered the same season from cuttings struck in March, with very little coddling either.

Again I cannot see the wisdom of such close pinching as he recommends—"after each pair of leaves." The plants may be kept very close and stocky by that system, but he must pinch the very life out of them also. In growing *Bouvardias* I want large trusses of well developed flowers borne on stout stems. Let Mr. Bardney run up a few without stopping until they attain a height of 18 inches, which early struck cuttings are not long in doing, then stop at every second or third pair of leaves until the end of July, generously treating the while, and he will have fine plants, rather spreading perhaps, but the quality and quantity of the bloom, and the main stems as thick as a lead pencil, will probably astonish him.

The size of the pots mentioned—4½ inch—does not speak well for the corresponding size of his plants. Grown well 7 and 8-inch pots are filled with roots long before blooming time, but not if placed out of doors—another detail open to debate. A week's wet weather plays havoc with their delicate feeders. Cool, airy houses or cold frames are best in my opinion for summer accommodation. With plenty of air and sunshine strength is not obtained at the expense of solidity. No one, however, should be in a hurry to remove them from warm quarters until they are well advanced in growth.—S. Y.

ROYAL HORTICULTURAL SOCIETY.

REPORT OF THE COUNCIL FOR THE YEAR 1889.

THE work of the Royal Horticultural Society cannot be said to have stood still during the year 1889. Three most useful Conferences have taken place at Chiswick—viz., on Roses, on July 2nd and 3rd; on Vegetables, on September 24th 25th, and 26th; and on Chrysanthemums, on November 5th and 6th; and the excellent results thus obtained, together with the most valuable statistics and returns sent in by the kindness of correspondents all over the United Kingdom, with a few from foreign horticulturists, will, as recorded in the "Society's Journal," form an authoritative standard of reference on the subjects concerned for some years to come.

Sixteen fruit and floral meetings have been held in the Drill Hall, every one of which has been productive of good results to one or other of the different branches of practical horticulture. The number of awards has been as follows:—On the recommendation of the Floral Committee fifty-four first-class certificates, eighty-four awards of merit, four botanical certificates, three commendations. On the recommendation of the Fruit and Vegetable Committee seven first-class certificates, three awards of merit. On the recommendation of the Orchid Committee twenty-seven first-class certificates, seven awards of merit, and twelve botanical certificates.

The Society's great Show, held (by the renewed kindness of the Treasurer and Benchers) in the Inner Temple Gardens, was even more magnificent than in the preceding year, the collection of Orchids in particular having probably surpassed any collection ever before gathered into one place. The best thanks of the Society are due to all those (and especially to the amateurs) who so generously lent their plants for exhibition.

Nor has the Scientific Committee been idle, and the notes of their meetings, as given in the Society's Journal, will be found full of interesting and valuable information to all horticulturists.

Meantime, the Society's general work of scientific experiment and investigation, and of the practical trial of various plants, has been going on steadily at Chiswick under the superintendence of Mr. Barron. Trial has been made of 104 varieties of Potatoes, 50 vars. of Broccoli, 108 vars. of Vegetable Marrows, Pumpkins, and Gourds; 30 vars. of Onions, 30 vars. of Brussels Sprouts, and 41 vars. of Peas. Amongst flowers trial has been made of 270 varieties of garden annuals, 66 vars. of China Asters, 20 vars. of Stocks, 190 vars. of Dahlias, besides Zonal and other Pelargoniums; Lemoine's New Hybrid Gladioli, Pentstemons, Heliotropes, Iris, &c. Ivies, of which the Society possesses a very fine collection, have been specially examined and classified. Reports on these trials will appear in the Journal. Of Chrysanthemums, 800 varieties were grown, and these not only added very materially to the display at the Chrysanthemum Centenary Conference, but from not being so severely disbudded, as is usually the case in producing the show blooms, the plants themselves, as well as the blossoms, were greatly admired. A large sum of money has this year been spent on the gardens. Extensive repairs have been done to the glass houses, and the general keeping up of the gardens greatly improved. The breaking down of two of the largest boilers threatened a great addition to outlay, but the liberal gift from Messrs. Foster & Pearson of one of their patent Chilwell boilers greatly reduced the expenditure under this head. A new hybrid Tomato, considered to be one of the best in cultivation, has been raised by Mr. Barron, and the seed distributed amongst the Fellows. The experiment of opening the gardens on Sunday has not met with such success as the Council had hoped, but they have decided to continue it—at least, for the present year; and then, if the privilege should not prove to be more highly valued, it may have to be abandoned, as, besides the additional work thrown on the officers on their one rest day in the week, it also entails considerable expense on the Society. The meetings held at Chiswick during the year, though successful in all else, have not been quite so successful in point of numbers as the Council had hoped; and they venture to think that in the year now commencing those Fellows who were so strongly in favour of meetings at Chiswick should make it their business by every means in their power, privately or through the Press, to increase the numbers attending.

But perhaps the chief event of the year has been the revival of the Society's Journal, by means of which Fellows at a distance are enabled to enter more fully into and reap the benefits of the study and work of those more actively engaged at the centre. Four volumes, containing about 750 pages, have been issued during the twelvemonth, and the Council have the gratification of knowing, from numerous letters received, that these volumes have been highly appreciated, not only in this country, but by correspondents all over the world.

The invaluable work of 376 pages on "British Apples," which Mr. Barron was able to produce as the outcome of the Apple Conference, 1888, is now being re-issued by the Society in a cheap and popular edition at the price of 1s. 6d. only. It may be as well to point out that unless this issue should command a very large circulation it will entail a great loss to the Society; but the Council have felt, in face of the wide-spreading interest taken in British fruit culture, and of the fact that this book is a standard work upon Apples, that it was their duty to encounter this risk, hoping that individual Fellows would endeavour to promote its sale amongst their neighbours and friends.

All these Conferences and meetings, and especially the work and maintenance of the Chiswick Gardens and the publication of the Journal, have involved the Society in a very large outlay, and the Council take this opportunity of endeavouring to impress upon Fellows the absolute necessity there is for them all individually (as many as have the Society's welfare at heart) to endeavour to secure new Fellows to the Society if its work is not only to be continued at its present standard, but still more so if the ever-opening and extending opportunities of usefulness are to be embraced and accepted. The adoption of £1 ls. as one rate of subscription was, no doubt, a popular movement, but the Council desire to remind the Fellows that such a low rate of Fellowship can only be self-supporting if it draws into the Society a very large number (far larger than at present exists) of additional Fellows. The Council, therefore, venture to express the hope that every Fellow of the Society will make an endeavour to obtain at least one new Fellow during this present year. A statement of the privileges of Fellows and of the aims and objects of the Society, together with a form of nomination to Fellowship, is for this purpose enclosed with this report.

The revival of lectures at the afternoon meetings has been another good feature in the year's work, and the Council hope that as the fact of these lectures and their value become more generally known, through their publication in the Journal, that the attendance of Fellows to hear them, and to take part in the discussions, will gradually increase. The Council cannot but think that many of the Fellows are unaware of the immense interest and value of these regular bi-monthly meetings and the lectures so kindly delivered thereat; and they beg to express, in their own name and in that of all Fellows of the Society, their very best thanks to all those gentlemen who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of these meetings.

The papers read at these bi-monthly meetings, all of which have been published in the Journal, are as follows:—

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| March 12 | "On Saxifragas," by Mr. J. G. Baker, F.R.S., F.L.S. |
| " | "Culture of Saxifragas," by Mr. Geo. Paul. |
| " | "Saxifragas," by Mr. Reuthe. |
| March 26 | "Dutch Hyacinths," by Heer A. E. Barnaart. |
| " | "Culture of Hyacinths," by Heer J. H. Kersten. |
| " | "Hyacinths in England," by Mr. James Douglas. |
| April 9 | "The Narcissus," by Mr. F. W. Burbidge, M.A., F.L.S.
M.R.I.A. |
| " | "Seedling Daffodils," by Rev. G. H. Engleheart, M.A. |
| " | "Portuguese Narcissi," by Mr. A. W. Tait, F.L.S. |
| April 23 | "The Auricula," by Rev. F. D. Horner, M.A. |
| May 14 | "On Irises," by Professor Michael Foster, Sec.R.S. |
| June 11 | "Orchid Culture," by Mr. H. J. Veitch, F.L.S. |
| June 25 | "The Strawberry," by Mr. A. F. Barron. |
| " | "Strawberry Culture for Market," by Mr. G. Bunyard. |
| July 2 | "Roses," by the Very Rev. the Dean of Rochester, D.D. |
| " | "Pruning Roses," by the Rev. A. Foster-Melliar, M.A. |
| " | "Groups of Roses," by Mr. William Paul, F.L.S. |
| " | "Stocks for Roses," by Mr. E. Mawley, Sec.N.R.S. |
| " | "Roses since 1860," by Mr. George Paul. |
| " | "Decorative Roses," by Mr. T. W. Girdlestone, M.A.,
F.L.S. |
| " | "On Rosa polyantha as a Stock," by Mons. Vivian Morel. |
| July 3 | "The Botany of Roses," by Mr. J. G. Baker, F.R.S.
F.L.S. |
| " | "Rose Hybridisation," by the Right Hon. Lord Penzance. |
| " | "A New Classification of Roses," by Prof. E. Crépin. |
| July 23 | "The Florist's Carnation," by Mr. Shirley Hibberd. |
| Augst 13 | "Peaches and Nectarines," by Mr. Francis Rivers. |
| Sept. 25 | "On Vegetables," by Mr. H. J. Veitch, F.L.S. |
| " | "On Asparagus," by Mr. Shirley Hibberd. |
| " | "Winter Salads," by Mr. Norman. |
| Sept. 26 | "The Food of Vegetables," by Mr. J. Wright. |
| " | "Peas since 1860," by Mr. T. Laxton. |
| " | "Potatoes since 1860," by Mr. A. Dean. |
| " | "How to have Vegetables all through the Year," by Mr.
J. Smith. |
| Oct. 8 | "On Conifers," by Mr. W. Coleman. |
| Oct. 22 | "Pears," by Mr. W. Wildsmith. |

- Nov. 5 "Chrysanthemums," by Mr. T. B. Haywood.
- " "Chrysanthemum History," by Mr. C. Harman Payne.
- " "New Chrysanthemums," by Mr. E. Molyneux.
- " "Judging Chrysanthemums," by Mr. J. Wright.
- " "Progress in Chrysanthemums," by Mr. Shirley Hibberd.
- Nov. 6 "Botany of the Chrysanthemum," by Mr. Botting Hemslley, F.R.S.
- " "Chrysanthemum Seed and Seedlings," by Mr. F. W. Burbidge, F.L.S.
- " "Dwarfing Chrysanthemums," by Mr. C. Orchard.
- " "Market Chrysanthemums," by Mr. C. Pearson.
- " "Early Chrysanthemums," by Mr. W. Piercy.

The hearty thanks of the Society are due to the Chiswick Board and to all the members of the standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees—for the most kind and patient attention which they have severally given to their departments; to the exhibitors and members of the special Committees also, who have contributed to so great an extent to produce the magnificent results of the Rose, Vegetable, and Chrysanthemum Conferences. And herein the Council cannot refrain from thanking especially the Very Rev. the Dean of Rochester, Mr. Harry J. Veitch, Mr. Shirley Hibberd, Mr. Molyneux, and Mr. Mawley, together with all the officers of the National Rose Society, who so cordially, and with such kindly feeling, co-operated in the Society's labours.

In conjunction with the Lindley Library Trustees the Society's library has received considerable attention. Several defective series (notably the *Botanical Magazine*, now complete from its commencement) have been made good up to date, and a large number of untidy but valuable volumes have been bound.

The best thanks of the Society are due to all those who, either at home or abroad, have so kindly and liberally presented books to the library or plants or seeds to the gardens. Special thanks are due to those gentlemen who have so kindly contributed Carnations in view of the Conference in July. A list of the donors has been prepared, and will appear in the next number of the Journal.

The Council recognise as fully as anyone can the great desirability of securing more suitable premises than the present Drill Hall affords, and they are now anxiously engaged in considering a scheme for erecting a suitable building on the Thames Embankment, which, if ever accomplished, would, they hope, not only afford ample facilities for our own Society, but also, in time, form a centre for all kindred horticultural associations. But they must remind Fellows that the adoption of this scheme is purely a matter of funds, and would entail a very large outlay, and until they can see their way to provide this they fear that no better place than the Drill Hall can, under the circumstances, be readily found.

The Council have the sad duty of recording the death of forty of the Fellows of the Society during the past year. Amongst them they regret to find the names Reichenbach, Boscawen, and Berkeley.

Besides the losses from death the Council deeply grieve to have to record the loss of thirty-nine Fellows by resignation. The Society has been struggling bravely for the last two years in the face of many adverse circumstances, and with the burden, financially speaking, of a large number of life Fellows—from whom it derives no income whatever—bequeathed to it by a former generation; and the Council had hoped that, with the evidence which even this report gives of renewed life and vigour and usefulness, the Society would have retained the goodwill and support, and for a time the forbearance of all who had joined it. They have, however, the pleasure of adding that a greater number have joined the Society than have left it. Still, as they said in another paragraph, they wish to impress very strongly the fact that the Society needs a large augmentation before it will be financially possible to embrace the many opportunities of usefulness opening before it. The following tabular statement will show the relations of increase and decrease during the year, both in the number of Fellows and the income arising therefrom:—

DEATHS IN 1889.			FELLOWS ELECTED IN 1889.		
	£	s. d.		£	s. d.
Life Fellows...	22	0 0 0	2 Guineas ..	61	128 2 0
4 Guineas	3	12 12 0	1 "	202	212 2 0
2 "	9	18 18 0	Associates ..	2	1 1 0
1 "	9	9 9 0			
	43	£40 19 0	New Fellows	265	£341 5 0
			Deduct	128	2 0
			Total Increase of In-		
			come	£213	3 0
RESIGNATIONS IN 1889.			265 New Fellows.		
	£	s. d.	92 to deduct.		
4 Guineas	4	16 16 0			
2 "	22	46 4 0			
1 "	23	24 3 0			
	49	£87 3 0	Total increase		
			in numbers...	173	
Total	92	£128 2 0			

ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDING DECEMBER 31ST, 1889.

DR.		£ s. d.		£ s. d.	
<i>To Establishment Expenses—</i>					
Salaries and wages	347 19 8
Rent of Offices	170 0 0
Printing and Stationery	19 13 1
Publications—Journal, &c.	493 17 8
Postage	142 8 0
Coal, Gas, and Water	11 1 3
Miscellaneous	47 14 11
Furniture and Fittings	14 17 0
Library—Books and Binding	22 5 6
					1306 12 1
<i>Chiswick Gardens:—</i>					
Rents, Rates, Taxes, and Insurance	278 9 10
Superintendent's Salary	225 0 0
Labour	722 14 2
Implements, &c.	122 19 7
Coal and Coke	243 16 8
Repairs	148 9 11
Water and Gas	25 2 7
Miscellaneous	77 19 0
					1844 11 9
<i>Shows, Meetings, and Conferences:—</i>					
Rent of Drill Hall and Cleaning	94 9 0
Special Show—Temple	431 13 10
Advertising	57 11 9
Prizes and Medals	18 1 4
Floral Meetings and Conferences—Printing, &c.	80 0 8
Floral Meetings and Conferences—Labour	55 15 1
Superintendent of Flower Shows	50 0 0
Grants in Aid	20 0 0
Miscellaneous	2 8 11
					10
<i>Donations, &c.—</i>					
Amount transferred	13
					£3974 6 11
CR.		£ s. d.		£ s. d.	
<i>By Annual Subscriptions ..</i>					
Show—Temple	2136 19 0
Meetings and Conferences	48 15 6
Advertisements	29 5 6
Miscellaneous	122 5 6
Dividends:—	23 3
Davis Bequest and Parry Legacy	59 10
<i>Chiswick Gardens:—</i>					
Produce sold	678 2 8
Admission and Members' Tickets	15 16 9
Miscellaneous	8 10 0
<i>Chiswick Horticultural Society:—</i>					
Balance of 1888	3 10 0
Subscription	40 0 0
					£43 10 0
Less Expenses	10 3 7
					83 6 5
					735 15 10
					£3520 14 10
<i>Balance to General Revenue Account ..</i>	453 12 1
					£3974 6 11

We have examined the above Accounts with the Books and Vouchers, and find the same correct.

GEORGE DEAL,
HARRY TURNER,
HENRY WILLIAMS, } Auditors.

January 24th, 1890.

BALANCE SHEET, DECEMBER 31ST, 1889.

DR.		£ s. d.		£ s. d.	
To Sundry Creditors	773 4 11
Donations received:—	400 0 0
Balance of Account
General Revenue Account	2103 5 3
Balance at Credit of that Account Jan. 1st, 1889	453 12 1
Less Balance for the year 1889	1649 13 2
					£2321 18 1
CR.		£ s. d.		£ s. d.	
<i>By Debtors—V.Z.—</i>					
Annual Subscriptions outstanding	27 6 0
Garden Produce	61 11 11
Journal—Macmillan & Co.	0 5 5
Chiswick Horticultural Society	33 0 0
					125 3 4
<i>Investments—</i>					
(Consols, 2½ Per Cents, £2122 8s. 9d., £2022 8s. 9d. of this sum is held by the Society, subject to the provisions of the Will of the late J. Davis, Esq.)	1893 11 3
Balance as per Cash Book	40 6 3
London and County Bank—
Donation Account	400 0 0
Petty Cash in Hand	3 17 3
					£2221 18 1

We have examined the above Accounts with the Books and Vouchers, and find the same correct.

GEORGE DEAL,
HARRY TURNER,
HENRY WILLIAMS, } Auditors.

January 21th, 1890.

LUPINUS ARBOREUS.

I WAS very pleased to see this border plant spoken so well of by Mr* S. Arnott on page 92. It well deserves all the praise there accorded it. I have found it one of the best plants for cutting purposes in June, July, and August. From a plant 5 to 6 feet in height I have twice a week cut large handfuls for those three months, and anyone having to provide a mixed supply of flowers would do well to purchase seed this spring. It should be sown as soon as possible, and the seedlings planted out in a sunny position at the end of May, hardening them off in the same way as a bedding plant. Eight years ago I purchased from a well-known London seed firm a packet of seed, and the following year and ever since I have had plants for cutting from in the above named months. Only one plant was then placed out, and the flowers proved a bright yellow colour. The foliage, like most of the Lupins, is bright

and elegant, and stalks with flowers and foliage attached can be cut a foot in length. This one plant died last spring, but in the autumn previous three cuttings were taken, placed in a 60-pot in a cold frame, and luckily one of these struck, and is now a plant 2 feet in height with a stem 1 inch in diameter. It has survived the winter so far, and if it lives will prove a useful plant for the future. I attribute the death of the older plant to late spring frosts. It starts into growth rather early if it happens to be at all mild in the month of February. The position chosen was a mixed herbaceous border sheltered from north winds, where it grew 6 feet high without any support, and had a main stem near the ground 5 inches in diameter.

I cannot enlighten Mr. S. Arnott on the short duration of this Tree Lupin, but it would be more safe to perpetuate it occasionally by cuttings or seeds. It certainly is worth a little trouble, for it is of far more beauty and usefulness than many of the bedding plants that require annual raising. In hardiness it has withstood 15° and 20° of frost on several occasions, but, as stated above, it has a habit of starting to grow rather early in spring. A space 6 feet by 6 should be allowed it. According to Don's "Hortus Cantabrigiensis," this species is a native of California, and was introduced in the end of the last century.—A. HARDING.



THE FINANCIAL SUCCESS OF CHRYSANTHEMUM EXHIBITIONS.

(Continued from page 112.)

To the Scottish Horticultural Association must be left the honour of surpassing all other societies last year, both in point of numbers in the attendance, and the amount taken at the doors. In justice to other societies it must be mentioned that this Society were celebrating the Centenary Exhibition of the Chrysanthemum, for which special attractions were provided. A large Chrysanthemum Show in Edinburgh was more of a novelty than anywhere in England, and no doubt added considerably to the attractions of the whole. Nowhere in existence is there such a fine site as that possessed by this Society. In spite of the advantages here named, much credit is due to all concerned for the way in which everything was managed concerning a very successful Exhibition. Although Edinburgh has not more than a population of 262,733, the amount of visitors was 31,945 during the three days which the Show was held, and which paid for admission. In addition to these, the Committee gave free admission to nearly all the charity schools in the city, the employés in the various nurseries, and gardeners in the City Garden, as well as to the employés in the municipal and Police Offices, and many soldiers in the Castle and the Barracks, beside 1000 tickets to guarantors and subscribers, making in all fully 3000 free passes, which brings the grand total of visitors up to 35,000, truly a remarkable number, exceeding even Portsmouth by over 13,000. The takings at the doors exemplify the wisdom of popular prices strongly. From 1 to 10 P.M. on the first day £425 3s. was realised; from 11 A.M. to 5 P.M., on the second day at 1s. charge £168 18s., while from 5 P.M. to 10 P.M. at a 6d. charge reached the large sum of £197 14s., making a total for the day of £366 12s. On the third day at 1s. and 6d. entrances £384 11s. 3d. was realised, which amounts in a gross total to £1176 6s. 3d.—truly a remarkable sum. Upon the first day very large numbers of ladies were present, who appeared to criticise and admire the exhibits in quite a hearty manner. In a summarised manner I give the total gate receipts of each place:—Portsmouth, £240 5s. 5d.; Birmingham, £277; York, £171 10s.; Hull, £241 2s. 6d.; Edinburgh, £1176 6s. 3d.—E. MOLYNEUX.

In Mr. Molyneux's excellent article on this subject, in the Journal of 6th February, I observe he is under a slight misapprehension as to the price of admission at the Hull Society's Show, as the time from 12.30 to 3 P.M. on the first day is the private view open only to members and holders of members' tickets, members having the privilege of obtaining tickets in excess of the number to which their subscriptions entitle them, at 2s. 6d. each on production of their passes at the door. No other money is taken until three o'clock, but the members and their friends are so numerous, that the rooms are always well filled at the opening ceremony at 12.30. I believe few shows open so early as this on the first day, even to members.—R. FALCONER JAMESON, *Chairman Hull and East Riding Chrysanthemum Society.*

THE TEDDINGTON CHRYSANTHEMUM SOCIETY.

THE annual general meeting of this Society was held at the Public Schools on Friday evening. There was a fair attendance of members. Mr. J. J. Staples was voted to the chair. The accounts, as audited, were presented by Mr. Furze, the Treasurer, showing a balance of £16 in hand, including the £10 in reserve fund. The accounts were passed, and a vote of thanks was accorded Mr. Furze for his valuable labours on behalf of the Society. Mr. F. Braby was re-elected President, and all the Vice-Presidents, with the exception of Mr. Binder, who has left the neighbourhood, were re-elected. The following were added—Col. Paske.

Messrs. D. Ames, W. Howard, J. J. Staples, W. F. M. King, and E. A. Burchell. The Treasurer, Mr. W. Furze; the Secretary, Mr. D. Anderson; the Auditors, Messrs. W. Millwood and R. S. Walker, were re-elected, and thanked by vote for their services, similar compliment being paid to the collectors, Messrs. W. Davies and W. Neave, who are appointed by the Committee. It was resolved that the next show be held at the Town Hall on November 13th and 14th, and the Secretary was instructed to inquire if Mr. G. Woodgate, Kingston Hill, and Mr. Lewis Castle, Merton, last year's Judges, would again undertake that duty.

LATE CHRYSANTHEMUMS.

By this post I send you two blooms of late-flowering Chrysanthemums. The reflexed Japanese is one of the best of its colour for late blooms. It produces flowers of good size, and the colour is all that is needed. The name is Sunbeam, an American variety. The other is also American variety, H. Waterer. Its fault is that it is rather tall, but very durable, the flowers lasting some weeks in perfection. The most useful of all late varieties is Golden Gem. This variety forms a nice bush plant when stopped until late in July, and gives abundance of apricot and yellow flowers through January and early February.—R. OWEN.

[Sunbeam certainly seems to be a promising variety, but we cannot say so much in favour of the other, judging by its present condition.]

THE LEICESTER AND MIDLAND CHRYSANTHEMUM SOCIETY.

THE annual meeting of this Society was held at the Temperance Hall, Leicester, on the evening of the 29th ult., when there was a good attendance of members and subscribers, Mr. W. K. Woodcock presiding. The report and balance-sheet for the past year was read by the Honorary Secretary, Mr. J. Read, the latter showing that although the expenditure in prizes awarded, hire of rooms, judges' fees, &c., had been greatly in excess of previous years, such additional outlay had been proved to have been judiciously incurred, from the facts that it had been well met by additional subscriptions and greatly increased takings at the doors, and that it had served the useful purpose of giving the Society a much better standing and status in the town and district. The accounts showed that all claims had been duly paid, and that the Society starts on the new year with a small balance in hand.

A letter was read from T. W. Wright, Esq., an ex-Mayor of Leicester, and a gentleman extremely popular in the town and district, accepting the office of President of the Society. The list of Vice-Presidents comprises the names of most of the best known and most influential residents in the town and neighbourhood, including the Marquis of Granby.

The other officers and a Committee were elected for the coming year, which, with a few slight alterations to rules, and votes of thanks to the officers for their work so well done during the past year, terminated the business.

On Wednesday evening, February 5th, the first meeting of the new Committee was held, Mr. W. K. Woodcock again presiding, when the first business upon the agenda was to fix dates for the next show. These were ultimately decided upon, by an almost unanimous vote, as to be the 14th and 15th November. It was also decided that the Temperance Hall be again engaged as the place for holding the same. The Judges selected were—Messrs. Jno. Wright and W. Tunnington. A communication was made to the meeting that one or two of the Vice-Presidents had taken upon themselves to provide a large silver cup to be awarded in the open class for forty-eight cut blooms at the next show. Several members of the Committee also signified their willingness to undertake the collection of funds for the purchase of what shall be termed the Tradesmen's Cup, to be subscribed for by Leicester shopkeepers, and awarded in a new district class to be formed. The further arrangement of the schedule was deferred pending the receipt of fuller information regarding these matters.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE annual general meeting of this admirable Institution was held on Monday evening last in a large room of the Caledonian Hotel, Robert Street, Adelphi, London, Mr. J. Wright in the chair. The minutes of the last meeting having been read and signed, the report of the Committee and balance-sheet for the past year were read by the Secretary, and showed that substantial progress was being made. One member had died during the year, and forty were elected. The members' share to the sick disbursements were a little under 3s. each for those subscribing 6d., and a little over that sum for those subscribing 9d. per week, the invested surplus for the members amounting to £400 during the year. The present position of the Society and its character appear to be embodied in the Chairman's address. After referring to the able manner in which Mr. R. Dean presided on many previous occasions, when the Society was comparatively obscure, and the good services he had rendered, and would render again, the Chairman, in moving the adoption of the report, proceeded:—

About seven years ago I made myself better acquainted with this Society than I had before, by a close examination of its books. These were placed before me by its then Secretary, the clear headed and good hearted Mr. McElroy. I was invited to examine every page, scrutinise every item, and point out every fault. I have recently examined the

books again with the present courteous secretary, Mr. Collins, and the more I look into the constitution of the Society and its working over a period of years the more I am satisfied on the following essential points:—

1. Its absolute safety and undoubted stability.
2. Its great excellence and wonderful comprehensiveness.
3. The advantages it offers over general benefit societies.
4. Its careful, economical, and admirable management.

Now given those conditions—and I am thoroughly convinced they are embodied in this Society—then I ask, What more can be expected or desired of a benefit and provident institution?

The "United," to employ a short term well understood, is safe and sound—"safe" because the benefit funds are invested in Government and Corporation stock, and [nothing can be safer than that; "sound" because they have from the beginning until now, and without any exception, increased in an enormously greater ratio than the withdrawals for sickness, and this preponderating increase of capital over liabilities must continue so long as the same conditions continue—a steady accession of members and the maintenance of the average health statistics. From these any material departure for the worse is an extremely remote probability; indeed, there is no evidence to justify us in regarding it as a probability at all, for probabilities lie in the other direction—improvement.

We have learnt from the report now presented for adoption, that the past year shows both the prosperity and usefulness of the Society. The experience, however, of any one year does not adequately represent its character; yet if we take what may be called the worst year—the year in which the deductions for sickness were by far the greatest on record, and which may be fairly regarded as abnormal—we find the receipts exceeded the expenditure by no less than £263 13s. 7d. That was in 1887. Passing to 1889 we find the income exceeded the outlay by £421 6s. 8d.; or, in other words, a gain in receipts of £134 7s. 6d., and a reduction in sick disbursements of £43 5s. 7d. over 1887—a very marked improvement on both sides of the ledger. But a fairer test for ascertaining the true position of the Society is to take an average of the last five years, and this shows a yearly addition to the benefit fund of £345 2s. 7d., and an average annual outlay of £32 3s., or a yearly gain for investment during the period of £312 19s. 7d. Multiply this by 5, and we find that the sum acquired in as many years, and placed to the credit of the members, to be no less than £1564 17s. 11d.

Is not that remarkable? I suspect it is unparalleled, and especially when the fact is remembered, for a fact it is, that there is not a farthing of expense as a set off against it, this being met by a small special fund provided by the far-seeing founders of this splendid Institution. Further, when, as we find in the balance sheet, that a sum exceeding £5000 now stands to the credit of the Society, surely not another word is needed on the question of its safety and stability.

Now we pass to the second claim—the great excellence and wonderful comprehensiveness of the Society. One of its excellencies is common to all benefit societies—namely, the right of members to payment during sickness over a prescribed period. When the limit is reached—a year—and a member continues ill, there is a substantial Benevolent fund to grant him further aid, of which he may more than ever be in need. No one knows till occasions unfortunately arrive, what good this wisely established fund may do. It has been of great service under sad circumstances in the past (the last occasion being a grant of £20 to four orphans, who lost both parents in three months), and may be, and probably will be, a perfect Godsend in the future to some poor aged and needy fellow mortals. Ordinary members only contribute one month's annual contribution to the fund, its main support being by contributions of honorary members. Gardeners' Friends who have the means and disposition to do so are thus afforded an opportunity for sharing in the good work of providing against unforeseen calamities, or for affording additional or supplementary relief to the sick payments in cases of emergency. It is most gratifying to note the great increase of honorary contributions during recent years since the character and scope of the Society became better known. When I examined the books seven years ago there were only eight of these, but now there are forty. And it is to be further noted that should misfortune befall any of these members, even they, though honorary, are entitled to assistance from the fund which they have largely created and largely sustain for the benefit of others. We ought to be very proud of the men who formulated rules so comprehensive yet so precise, by which the greatest amount of good can be done and absolute security maintained.

Next to be referred to are the striking advantages the "United" offers over general benefit societies. Here we come to something that stands alone, distinct, and superior to anything that can be found, I believe, in connection with any other benefit society in the world—the investment of the surplus accumulated capital (excluding £1416 14s. 10d. of the Benevolent Fund), now amounting to £3478 18s. 11½d., to the credit of the members. This is theirs, not only without any drawbacks, but with all accumulations, for the yearly interest on each member's share is added to his capital investment, for it is as surely his as if the money passed from his own hands into the Bank of England. Further, the exact amount banked for each member is made known to him every year. The sums are steadily accumulating, last year's increase being £400, and will do so as long as the subscriptions are paid; and even if they lapse the amount invested remains the property of the defaulting member, and is payable to him if he attains the age of sixty years, or at his death, whenever that may occur, to his

nominee, whose name is entered on the books; but, and here is a little penalty which the shrewd authors of this grand scheme imposed. When a member ceases payment—ceases, in fact, to be a member, the interest earned by his share of invested capital is not added to it, but is transferred to the management fund; and at the present moment a sum of £339 16s. 4½d. stands to the credit of persons whose payments have lapsed. They lose the interest on that amount, therefore the Society does not lose by losing a few members, but gains. Still, it is always striving for more. Why? Because it is for their benefit. That is the great central, indeed only possible, object of its existence. No power on earth can deprive a member of one farthing of his investment, and no official has a fraction of pecuniary interest in the increase of those investments. It is said that corporations have no souls, but here we have an exception, for this corporation of gardeners for the benefit of gardeners has 310 souls, for that is the present number of members, and each has an irrefragable claim for a clearly defined share of the accumulated property. He pays his contributions, his share of the disbursements are yearly deducted, and the rest, the great bulk, is placed in the bank for him. Nor has he many years to contribute before nearly the whole of his payments to the benefit fund are added to his accumulated store, for the interest arising from this approaches his yearly contributions to this fund. An example or two will show this clearly.

The first name on the books is that of Mr. W. Heale, but he is dead, so we take the account of Mr. J. George, whose name stands second. His accumulated stock is £59 4s. 5d.; his contributions for the year were £1 19s., while the interest from his stock, and added to it, was £1 12s. 1d., so that as compared with ordinary benefit societies, in which no surplus is invested for the members, he insured himself for 16s. a week in case of illness by a yearly payment of 6s. 11d., or less than 2d. a week; he, of course, paid his 9d. a week, but 7d. of this was added to his invested property. Third on the list of subscribing members stands Mr. J. Wheeler. His invested fund is £39 3s. 7d.; year's contributions, £1 6s.; interest from and added to stock, £1 1s.; difference, 5s. It will be noted that these two members joined at the same time, one paying 9d. a week for 16s. during illness, the other 6d. a week for 10s. 6d. during illness; but the former has £20 more than the latter standing to his credit in the books. Though the advantage of the larger contribution is shown here it does not follow that all young men do best by commencing with the larger payment—on the contrary, experience tends to show that it is better for those with very low wages to commence at the lower scale and pass to the higher when they can better afford to do so, as it is found that a considerable per-centage of those who join on the maximum rate fail to meet their engagements. This is to be regretted, but it is better to state facts than suppress them because they do not happen to be the most agreeable.

Now, all the benefits of this Society, including the substantial personal investments, are insured by smaller annual payments than to general benefit societies, the members of which have no share whatever in the invested reserve funds. Mr. George Baker of Membrand Hall, one of the oldest members of the Society, and I think one of its founders, but certainly for some years its Treasurer, once showed me so forcibly the great advantages of this over such societies as the Odd Fellows, Foresters, and others, that I repeat his words, which I took down at the time, and I should be glad if they could reach the ears of every gardener in the kingdom. "I have paid," he said, "7d. a week into one of those clubs since I was eighteen years of age, and I am now fifty. I have fortunately had nothing out in that time, and if I go on paying all my life there will be £12 at my death." And then he continued, "I have paid 1d. a week less into our Gardeners' Society for seventeen years, and have nearly £40 to my credit, and if I continue paying as long as I paid into the other I shall have £100." This, mark you, is £100 in the "United" against £12 (at death) in the general, and a penny a week more for insuring the £12 than the £100, the benefits during the sickness being practically the same in both cases. Mr. Baker's words should be pondered over by every gardener between eighteen and forty-five years of age, whose ears they may reach, and he will surely take advantage of his position and opportunity in joining this combined benefit society and savings bank in preference to the general societies, which, however valuable they may be to a mixed community of workers, cannot offer anything like the advantages that the "United" does to those for whom it was established.

Before a member of ordinary societies can receive payment during sickness he must relinquish work entirely. This is not so in the "United." He can do some work, and thus keep his situation, and at the same time receive a proportion of sick pay on a doctor's certificate. This is a provision; but as if to help what may be called a half pay man off the fund, there is a slight deduction from his payment, which goes to the benevolent fund. What astute men the framers of these rules must have been, and I think I am safe in saying their equals have not been found outside the gardening ranks. It is the duty of all gardeners to take advantage of their positions and the privileges offered them by this Society, and those of them who have joined the mixed general societies have little to lose and much to gain by having themselves enrolled as members of the "United." Many have done so, and more on reflection must follow their example. I certainly would not suggest their doing this if I were not convinced it would be to their advantage, for a thousand new recruits would not benefit me in the slightest, nor others who are connected with the institution.

The last of the four essentials that have occurred to me as such is the careful, economical, and admirable management of the Society.

There can be no waste of wealth, no fat salaries, no feasting out of the funds; the rules are too stringent for that. Every man who gets a penny out of the Society for services rendered to it must earn twopence at the very least. The secretary's work in keeping three sets of books, making out an annual balance sheet for every member, and writing between 400 and 500 letters is done for £20; the trustees' expenses during the year were 19s. 6d., and treasurer's, 10s. If the work were not a labour of love born of a desire to help their fellow men, the officials could not work so zealously as they do, always have done, and I venture to say always will do; for I am confident there will never be wanting in the gardening ranks bright-minded and large-hearted men who will honestly, earnestly, and gladly do the best they can for the community to which they are proud to belong; and I trust the time is not far distant when the cream of that community will be united under the banner of the United Horticultural, Benefit, and Provident Society, the twenty-fourth annual meeting of which is being held to-night.

Mr. R. Dean seconded the adoption of the report, and the proposition was passed unanimously. Messrs. Cole, Berry, Dickens, and Kelf were elected on the Committee in the place of retiring members. A gift of £25, generously offered by Mr. Sherwood, towards the formation of a convalescent fund for sending members recovering from illness to the seaside, was thankfully accepted, and it was thought with occasional grants from the benevolent fund Mr. Sherwood's contribution might be of great service in the manner suggested. Sundry votes of thanks to the officers and Chairman brought the proceedings to a close.



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY.

(Continued from page 115.)

Pride of Reigate (G. Paul, 1885).—Of Victor Verdier race, being a sport from Comtesse d'Oxford, with the usual manners and customs of the family. This Rose has at least the merit of being the most distinct in colour of all H.P.'s, so that the merest tyro could pick it out anywhere, for it has the dark ground shade of the original from which it sported, striped and splashed with white. The result is not pleasing to me personally, but that may be a matter of taste. The old Damask Rose, "York and Lancaster," which had more white, and a fairly bright red instead of a somewhat dull carmine, seemed a more attractive combination of colour; but I do not think a striped Rose will ever find great favour.

Pride of Waltham (W. Paul, 1881).—Another of the same family, being also a sport from Comtesse d'Oxford, and a very valuable one. As a show Rose this is perhaps the best of this important race, for it is as good a grower as any of them, and the blooms are very large, opening well to a grand shape with stout petals. Even Waltham may well call this Rose its Pride.

Prince Arthur (B. R. Cant, 1875).—Of good though not stiff growth, and fair foliage; liable to mildew, but not much injured by rain. The blooms come generally well, and have very good lasting qualities, though the petals are rather thin. I gather from Mr. Cant that the origin of this Rose is rather obscure, but the general appearance points to Général Jacqueminot as an ancestor. It is, however, much darker in colour, and with me much larger and better in every way. A capital Rose, of pointed shape, very free blooming, and fairly good in autumn, but requires good soil and generous treatment.

Prince Camille de Rohan (Verdier, 1861).—Syn: La Rosière. Of good growth and foliage, very liable to mildew, and to burn in a hot sun, but not much injured by rain; thin and apt to show an eye; very free blooming, and good in autumn; below the average size, but remarkable for its colour. Still the darkest of all Roses when grown strong, and velvety to the highest degree. Being much the oldest of all the dark Roses of merit, it was a very well known name in past years (better known in this country, I should say, if it is not treason, than the Prince himself), but has not only been passed in the race by larger and more enduring sorts, but has also apparently deteriorated in itself. Though hardy, a good doer, and easily propagated, it always requires to be grown strong to show its true colour, for it will come of quite a different hue—more of a scarlet crimson—on weakly shoots. Requires a thoroughly cool season, and came to light again wonderfully in the shows of 1888, being hard to beat at any time as a thoroughly dark bud for a buttonhole.

Queen of Queens (W. Paul, 1883).—Another of the Victor Verdier race, with the usual habit. Was quite good with me in 1887, but all my plants of it have gone off very much, and I have not had a good bloom since. This may, of course, be accident, but I do not think it can be reckoned among the best specimens of its tribe.

Reynolds Hole (Paul & Son, 1872).—A seedling from Duke of Edinburgh, of long strong growth when in health, with smooth characteristic

wood, but by no means of strong constitution, for the plants are sadly apt to become weak and die. It is liable to mildew and to injury from rain; a good average of the blooms come well shaped, but the weather must be hot and dry or neither colour nor form will be perfect. The flower is well filled in the centre, lasts extremely well, and hardly ever shows an eye; but it opens slowly, and must not be cut for exhibition before it is expanded, for neither long journeys and hot weather, pencils or budding knives, force or violence, will make it open except on the plant. It will not put up with light soils or the Manetti stock, is not very free flowering, and, being so dainty, cannot be expected to become a good autumnal. But a good bloom of it is truly superb, in petal, shape, colour and size, worthy of the name it bears of the President of the N.R.S., who has done so much to render Rose growing popular.

Séateur Vaisse (Guillot, 1859).—Of fairly strong growth and constitution, and not very liable to injury from mildew or rain. The blooms come pretty well, with fair petals, good centre, fair size and good colour. An old Rose that still holds its own, a free bloomer and good autumnal; hardy, fragrant, and not over-particular as to soil, but must be grown strongly to show its brilliant colour at the best.

Souvenir de la Malmaison (Beluse, 1843).—This is not, strictly speaking, a Hybrid Perpetual, but a Bourbon Rose, and as I shall not name any other of that race, and it would have to be shown among H.P.'s by N.R.S. rules, it does not seem worth while to give it a section to itself. The growth and foliage are good and characteristic, not liable to mildew, but rots instead of opening in a wet season. The first crop of blooms come badly, many being divided and some quartered; at all times it opens very flat, a form admired by few and practically unrecognised now among show Roses. A very free bloomer and, as becomes a Bourbon, sweet scented and coming even better in the autumn than in the summer. This is a Rose of considerable reputation, which I regret that I do not admire; perhaps old associations enable it to maintain its position, for I do not think it would hold its own if introduced now as a novelty.

Star of Waltham (W. Paul, 1875).—Of strong growth in rich soil with magnificent foliage, not very liable to mildew, but will not stand rain. This Rose cannot be depended upon to come good, but is a splendid bloom when seen at its best, in petal, shape, colour, smoothness, size and lasting qualities. Not one of the best as a free bloomer or autumnal, and will not grow in poor or light land, requiring the best of weather and the richest and strongest of soil to show its good qualities to perfection.

Sultan of Zanzibar (Paul & Son, 1876).—Somewhat similar in wood to Reynolds Hole, of weak growth though often marked "vigorous." A Rose of very bad constitution with me, for I simply cannot keep it alive, and had never had even a decent bloom. It would probably have dropped out of the lists before now but for its magnificent colour—maroon, edged and shaded with very bright red. I have given it up, as it is no use wasting room on a variety which makes absolutely no return, even as a maiden.

Thomas Mills (Verdier, 1873).—Of very strong growth and good foliage, not much liable to mildew or to injury by rain. The blooms come well in fine weather, but are thin and most deficient in lasting qualities. The colour (scarlet crimson) is very bright, the shape pointed and imbricated (exquisite), and the size large; but it is a veritable snare for the inexperienced exhibitor, who finds it impossible to believe that those glorious half-opened flowers are really not worth taking. It might do in very cool weather, but the colour and shade are then deficient. Glorious at times in the garden in the early morning, and said to do well in northern counties. A fairly free bloomer, but not a good autumnal, many of the secondary shoots forming wood only.

Ulrich Brunner (Levet, 1881).—A seedling from Paul Neyron, of splendid stout stiff growth and foliage, untouched by mildew, and standing rain fairly. The blooms come very well, of extra large size, with stout petals tightly incurved in the centre, fine regular smooth shape, and capital lasting qualities, though the freshness of colour soon fades. A great Rose in many ways—free blooming, and capital in the autumn; hardy, and does well almost anywhere. When asked some time ago to recommend the two most useful varieties to a landlord who wished to give a good H.P. standard Rose to each of his cottagers, I selected La France and Ulrich Brunner as being the most likely to give satisfaction.

Victor Hugo (Schwartz, 1884).—Of fair growth and foliage, liable to mildew, but can stand some rain. This Rose is described in one well-known catalogue as "almost full," words which in catalogue English are generally absolutely damnable of a show Rose; but with me the blooms come well, fair in petal and centre, of good shape, glorious colour, and fair size. This is a very taking sort from its glowing colour, seems to have a good constitution, and on rich soil to be a good doer; fairly free in bloom in summer and autumn, but the flowers are not very lasting. The sort of Rose of which an exceptional bloom, like the one which gained the medal at Sheffield, will attract great attention.

Victor Verdier (Lacharme, 1859).—This Rose, as noted by Mr. G. Paul at the Rose Conference, has probably some slight admixture of Tea Rose blood (I suppose the phrase is legitimate; one must say "blood," not "sap," when treating of breeds and breeding); at all events the entire habit is most distinct, and it has become, as we have seen, the parent of a large and valuable race of smooth-wooded Roses, all of which show the family traits in almost every particular. For a description of manners and customs see Comtesse d'Oxford. The majority of those which have been noted are superior in many respects to this, their common ancestor.

Violette Bouyer (Lacharme, 1881).—A seedling from Jules Margottin, of free, vigorous, long growth, with good foliage very liable to mildew. This Rose comes very well, of a most useful shape, the outer petals falling well down before the centre uncloses; it thus makes the most of itself, and never requires any dressing. It cannot stand any rain, like Madame Lacharme, and, like it, is liable to show injury from thrips, the petals being delicate in texture. The outer petals only are tinted with pink, and often the whole Rose is pure white. It is very free blooming, and good in a dry autumn, also hardy and strong in constitution, but loses in value from its dependence upon fine weather.

Xavier Olibo (Lacharme, 1864).—Evidently a seedling from Général Jacqueminot, as the wood is very similar. A weak grower with bad constitution, rather liable to mildew, and not enduring rain well, which answers best if budded annually, but occasionally does fairly well as a cut-back. The colour of this Rose is generally catalogued as "velvety black, shaded with amaranth," which is a very taking description, especially to those (if there are any beside myself) who have but a hazy idea of what amaranth is as a colour. I thought it was a flower, not a colour, and the sort of flower more often found in books of poetry than in actual gardens. Moreover, I confess that having seen first-class specimens of Xavier Olibo, which sometimes produces a very fine dark bloom, I am still uncertain as to where the amaranth "comes in," as the Americans say. Dark crimson, shaded darker, and velvety in favourable specimens, would be my description, but I dare say it would not be right. I know that it is difficult to describe the various shades accurately. The blooms come divided sometimes, the petals are stout and the centre full and recurved, but sometimes nicely pointed; a good luster, of full size. It will not answer on poor soil, and from its weak growth is necessarily not good as a free bloomer or autumnal.—W. R. RAILLEM.

(To be continued.)

EUCCHARIS GRANDIFLORA.

IN your issue of January 30th I notice an article by Mr. W. Taylor, entitled "Destroying the Eucharis Mite." Like Mr. Taylor, I do not believe the Eucharis is altogether a hard plant to cultivate, but I cannot understand their doing fairly well either baked, stewed, or poisoned. I contend the best way to renovate bulbs that are in ill health (which I prefer to call it rather than attacked by mite, as I think the one follows the other as a matter of course), is to cut away the roots and leaves and wash the bulbs and place in small pots, say three bulbs in a 6-inch pot, like Mr. Taylor, and remove when filled with roots.

I prefer washing the bulbs in warm water, as I find it safer to kill the mite by good treatment rather than have recourse to so-called mite killers, which I think I am safe in saying have sent more bulbs to the rubbish heap than any other cause. The wash Mr. Taylor recommends I consider no more effectual than water, as one of my friends soaked his bulbs in a mixture of petroleum, &c., for twenty-four hours, the same being much stronger than Mr. Taylor used, at the end of which time the mite was still alive, but the bulbs hopelessly destroyed. When my own bulbs were first attacked through coming in contact with some fresh bulbs I bought, I, like many others, tried to cure a portion of them by dipping them in a strong solution of petroleum and soft soap, which killed instead of curing, and those I left alone to be cured by cultivation succeeded beyond my expectations. Another Eucharis grower in our neighbourhood says my version of the matter entirely coincides with his experience, he having killed bulbs he tried to cure by dipping, and cured those he left alone. Doubts exist in some people's minds as to my bulbs having been attacked by mite, but that they were attacked by mite and also by a fungus is a fact, to which Mr. W. B. Grove of the Mason Science College, Birmingham, can testify. I observe that one vendor of a mite killer in advertising same in your columns, says that bulbs which four months ago were leafless and eaten by mite all over and into the scales are now in healthy leaf and throwing their flower spikes. If this be so, I think this wonderful recovery in so short a time should go a long way to prove that the ravages caused by mite are more imaginary than real, assuming of course that proper treatment is given.

The plants Mr. Taylor alludes to were bought at auction, and which quickly responded to a liberal treatment, but after being divided and repotted soon fell into a sickly condition, making new leaves only to lose them prematurely. These, I presume, were repotted with roots and leaves left untouched; in which case, unless the bulbs are exceedingly healthy, the roots have a tendency to decay and encourage insect life, and the leaves a tendency to push unsupported by anything except what remains in the bulb, which it soon exhausts, and the atmospheric moisture of the house. After a short time this support proves to be altogether insufficient, hence the leaves getting into the flabby condition alluded to by Mr. Taylor; whereas if roots and leaves had been removed in first instance, which according to Mr. Taylor's letter had to be done before any good result was obtained, I think he would have been able to say the bulbs responded to the call without the aid of petroleum and Fir-tree oil. I find that by the removal of leaves the bulb becomes, as it were, sealed for a time, and the slimy substance so necessary for the after development of roots and leaves preserved, without which I think it is useless to attempt to grow the Eucharis successfully, as the drier the bulb becomes the less the chance of success, and the easier it falls a prey to enemies.—HENRY PORTER.



FRUIT FORCING.

VINES.—Early Forced House.—The Vines in flower must have a temperature of 60° at night, and 70° to 75° by day artificially. Keep the atmosphere somewhat drier by free ventilation, leaving a little air on at night, yet keeping the floors sprinkled three times a day during bright weather. Any shy-setting Grapes may have the pollen distributed by brushing the bunches lightly with a camel-hair brush. Stop the laterals at the first leaf, and keep them stopped to one leaf throughout the season, but those beyond the bunch may be allowed to make two or more joints, provided there is space for the full exposure of the foliage to light and air. Avoid overcrowding the foliage; it is better to reduce the laterals than allow them to obstruct the light that would otherwise reach the principal foliage.

Houses Started at the New Year.—The Vines are in leaf and showing fruit. Disbud when it is seen which shoots are likely to afford the best bunches. One bunch on a spur is as much as is likely to finish satisfactorily; but if there be space, the spurs being widely distant along the rod, two shoots may be left, it being clearly understood that only one is to be allowed to carry fruit, the duplicate only remaining until choice can be made of the best, and in case of two shoots being left, one ought to be near the main rod, so as to keep the spur as short as possible. Weakly Vines, however, may be given more latitude, so as to secure stouter wood, larger and plumper eyes, and better bunches in future. See that outside borders are sufficiently protected to prevent chill by heavy rain or snow. When the Vines are in leaf the temperature should be raised to 60° or 65° at night, 5° less in severe weather, 70° to 75° by day with sun, admitting air carefully in sharp weather, but freely whenever the external conditions are favourable, in order to the formation of stout firm-textured foliage.

Houses to Afford Grapes in July and August.—The Vines must now be started. Damp the rods three times a day, and every available surface. A temperature of 50° at night, 55° by day artificially, and 65° from sun heat, is suitable until the buds begin to move. Bring the inside border into a thoroughly moist state by repeated supplies of tepid water or liquid manure. Afford outside borders sufficient protection against chill. Any young rods or canes should be depressed to the horizontal line, or lower, to insure the buds breaking regularly.

Ripe Grapes.—Avoid fire heat as much as possible in the Grape-room, admitting air to prevent an accumulation of moisture, replenishing the latter with clear soft water as required. An equable temperature of 45° is most suitable.

New Borders.—Soil should now be prepared, and the best for the purpose is the top 3 or 4 inches of a rich pasture of a friable nature, neither very light nor very heavy. As that is not always obtainable light loam may have an addition of clay marl, and heavy loam an addition of old mortar rubbish, a fourth to a sixth, in each case according to the texture of the loam. To improve the porosity of the compost a sixth of old mortar rubbish may be added to the loam, being careful to remove every particle of wood. A twentieth part of charcoal may be added, and a fortieth of crushed bones. Calcined oyster shells may be used in similar proportion to the crushed bones, also wood ashes. Chalk is a good application to light silicious soil, employing it to the extent of a fifth. If the soil be poor a fifth part of short fresh stable manure or horse droppings may be added. It is best, however, not to apply material which when spent forms a close mass. The whole should be well incorporated.

In preparing the border, which may be proceeded with as weather permits, bear in mind that no fruit tree requires more copious supplies of water when in growth than the Vine, and at the same time none is more impatient of stagnant water; hence drainage should receive first attention, and instead of excavating, concreting, and cementing keep the border well elevated as far as circumstances permit. Employ 3-inch drains with proper fall and outlet. Provide a foot in depth, material, the roughest at the bottom and the smallest at the top, which last preferably may be old mortar rubbish. If the border is intended for early or late Vines allow a sharp slope to the south for the purpose of throwing off the wet by shutters or other means. The best time for planting Vines is from April to June inclusive, and those intended to be planted at that season must now be cut back to the length required, and be placed in a cool Peach house or pit to start into growth, and when the new shoots are 2 or 3 inches long shake out the plants and plant them in the permanent borders. A 6-foot width of border will be sufficient in the first instance. Where the Vine roots are to have the run of both inside and outside borders they should be confined inside, not making the outside border until the Vines are thoroughly established.

CHERRY HOUSES.—These are not nearly so common as they deserve to be, indeed no fruit is so esteemed at dessert as the Cherry. A lean-to house erected against a south wall is suitable for Cherries, and it need not be more than 6 feet in width. The back can be covered with trees, and the front to a height of about 6 feet, with trees on the Mahaleb stock. Provide ventilation at the top and bottom of the house, and the front lights to be moveable. The border should be made inside, though

the roots may have access to an outside one. Thorough drainage must be provided, so as to carry off superfluous water. Rather strong loam is most suitable, adding about a sixth of old mortar rubbish and a fifth of road sweepings. Trees from the open wall between four and six years trained, if carefully removed to the house, come into bearing at once. Water them well to settle the soil about the roots, and ventilate freely, syringing in the morning and early afternoon, employing fire heat only to exclude frost, but when the trees are fairly in growth let the day temperature from fire heat be 50° to 55°, rising to 60° to 65° from sun, increasing the ventilation at 55°, and close at that temperature, leaving, however, a little ventilation on day and night, 40° to 45° at night from fire heat will be sufficient. May Duke, Black Tartarian, Elton, and Governor Wood are suitable varieties for forcing.

KITCHEN GARDEN.

FORCING.—Vegetable forcing may now be practised with success and little trouble. Rhubarb and Seakale grow readily with the aid of a fermenting bed placed over the crowns and pots, and Asparagus is ready in ten or twelve days after being placed in a temperature of 65° or 70°. Surplus roots of all these should be used for forcing before the season is further advanced, but there is no economy in forcing roots that are required to keep up the desired supply when the time comes for them to grow naturally. Those who force roots should always provide some for the purpose without having to interfere with the ordinary stock.

KIDNEY BEANS.—December reared plants are now in flower, and require to be kept well supplied with water at the roots, but in a somewhat dry atmosphere, as the flowers will decay if kept very humid. The pods will swell rapidly in a temperature of 70° or a little less, and they are all the better for being kept well up to the light. We do not, however, approve of keeping them in vineries or Peach houses, as they are somewhat apt to be infested with red spider, and if it gains a footing on the Vines or trees thus early it may prove injurious before the season is over. Sow a large quantity of seed, as this will produce plants at a time of the year when they will bear heavily. We regard Kidney Beans as one of our most useful forced crops in April and May.

PEAS AND BROAD BEANS.—See that birds or slugs and snails do not injure the young plants now coming through the soil. Sprinkle them with lime or soot, put a little ridge of finely sifted ashes along each side of the rows, and give protection by placing a few short twigs in stakes. We save all our old birch brooms during the summer to use in this way. Sow more seed of both Peas and Beans, still giving them the best position in the garden, and only using the earliest varieties.

GROUND FOR CARROTS AND PARSNIPS.—Few soils are naturally suitable for these two important crops. Both require deep ground, and neither succeeds in a heavy wet soil. Grubs and worms are especially enemies to Carrots, and fine clean roots will only be produced in a friable soil that has been cleared of all pests. Of late we have been carting refuse recently cleared from a pond, which consists chiefly of decayed leaves and sand, on to our Carrot and Parsnip quarter. It was laid on about 1 foot deep; some old Mushroom bed material, a quantity of soot, and a little lime were added, and the whole trenched and worked in to a depth of 18 inches, and the best results may be anticipated for several years to come. All growers may not, however, be able to secure pond refuse, but road scrapings may be substituted, and soot or lime should not be forgotten. Ashes too, especially when partially obtained from wood, are useful on heavy soils, and the preparation of a piece for Carrots and Parsnips on lines somewhat after those suggested will amply repay cultivators.

SPINACH.—The autumn-sown prickly sort has been luxuriant all the winter, but it becomes coarse in spring, and as Spinach is one of the first crops that may safely be sown in the open several rows may be put in on the first opportunity. The plants early in the season run rapidly to seed, and that is the reason why we always sow in small quantities and often. A sunny sheltered corner is the best position for it thus early.

CABBAGES.—As these have received little or no check the whole winter they promise to be ready unusually early in the spring. Make up the blanks in the rows, clear the dead leaves and weeds from amongst the plants, and draw a little more soil to the stems with a drag hoe. Should there be a deficiency of plants in the main quarter manure and dig another piece of ground, and plant out more from the seed bed. We have often found this plantation in almost as soon as the autumn planted ones, and our practice is always to plant out some in the spring, no matter how extensive our autumn lot may be.

TOMATOES.—Cuttings rooted in the autumn should be potted into 6-inch pots. Do not give them a rich soil, as this only induces them to make superfluous growth. Make the soil, which should be chiefly loam, very firm round the roots, and place them near the glass in a temperature of 65° or 70°. These plants will fruit before any of this year's seedlings. Those who omitted to take cuttings, however, must depend on seedlings. Do not give them over-rich soil. This is a rule we apply to all Tomatoes, and keep them growing in brisk heat. Plants that will fruit in March and ripen in April must be confined to one stem and placed in favourable positions in the houses. Where they are grown as a market crop plant them out in the forcing pit like Cucumbers, 1 foot apart, but do not give more than an 8-inch potful of soil to each plant at present, as this is ample to make them produce fruit, and more can be added if necessary.

Sow a little Lettuce seed again in a pot or box under glass, also a pinch of early Celery, Leek, Cauliflower, and Brussels Sprout seed; but avoid as yet sowing anything like the main crop of any of them.

PLANT HOUSES.

French Pelargoniums.—Some of the earliest plants will be showing their flower trusses. These must not be unduly hurried, for no advantage is gained. If they are kept too warm and too close the foliage soon draws up weakly, and the appearance of the plants is destroyed. This is not all. The plants fail to flower so long and satisfactorily as if they had been brought forward a little steadier. What they need is a position close to the glass, where the temperature ranges 50° to 55°, with a free circulation of air amongst them whenever the weather is favourable. Later plants should be kept cool to induce strong sturdy growth. A number of plants that were rooted early and placed in December in their flowering pots will be filling them with roots. A little artificial manure applied to the surface of the soil will benefit these. Soot water in a clear state acts quickly, and imparts to the foliage a dark healthy appearance.

Plants that were pinched some time ago should have broken strongly, and may without delay be placed in their flowering pots. Old plants that were grown strongly last year and cut hard back rather late in the season will still be weak. Pinch the shoots as soon as they are long enough, and in a cool house they will break strongly and gain strength rapidly. As soon as they fill the small pots in which they were placed they should be transferred to those in which they are intended to flower. Plants that were struck late are still in small pots and ready for pinching. As soon as they break again transfer them to a size larger. Do not push them on in a close confined atmosphere, for they only grow weakly, and time in the end is lost. Cuttings of young wood will now root freely if inserted singly and placed in a temperature of 65°. In potting these plants press the soil firmly into the pots, and use for a compost fibry loam, one-seventh of manure, and sand. To this may with advantage be added a sprinkling of soot and artificial manure.

Fuchsias.—Cuttings are now plentiful, and will root freely in boxes that can be covered with a square of glass if the boxes can be placed in vineries or other houses where the temperature ranges 60°. As soon as they are rooted place them singly in small pots, and grow on a shelf close to the glass to prevent their drawing. Sturdy growth from the first is necessary to have handsome plants well flowered in small pots. Autumn-rooted plants should be placed into 5-inch pots. For these use a compost of loam three parts, the other part being composed of leaf mould, sand and manure, or old Mushroom bed refuse.

Lantanas.—Plants at rest may be pruned back and started into growth in a vinery or Peach house. Good syringings daily will be ample until the plants show signs of breaking, when they should be turned out of their pots, the roots reduced, and the plants repotted in a smaller size. It will then be necessary to water them carefully until they display signs of active growth. Young plants rooted in August or September and kept gently moving through the winter should be placed into 5-inch pots. If placed in an intermediate temperature and the shoots pinched from time to time they will soon make bushy little plants.

Callas.—Plants that have been flowering for some time should be supplied with weak stimulants every time they need water. If they are to continue flowering they should be encouraged to grow, or they soon come to a standstill. Plants that have been kept perfectly cool will soon come into flower if they are placed into an intermediate temperature. Where it is necessary to increase the stock suckers may be carefully removed and potted singly. Small pieces will make strong flowering plants another season. Aphides are the greatest enemies these plants have to contend against; slight fumigations of tobacco smoke will destroy them, but if done strongly the spathe is liable to injury. They can be kept down by a free use of the syringe. If the spathe is damaged in appearance by them it can be cleaned by the aid of a soft sponge under a tap of water. The supply of water for this purpose must be abundant, or else the spathe is damaged.

THE BEE-KEEPER.

HINTS TO BEGINNERS.

EARLY POLLEN GATHERING. — FEEDING.

THE month of January was mild but stormy. The temperature on the 16th was 52° Fahrenheit, and the bees for the second time were busy on the Arabis, and gathered pollen from it on the 12th of the same month.

As some of my nuclei had only 8 lbs. of sugar since they were formed, and built from that 4 square feet of combs, it fully refutes the 20 lbs. of honey for the pound of wax theory. Taking advantage of the extra mildness I fed those with from 4 lbs. to 6 lbs. of sugar. I was apprehensive of being short of stores. Singularly, the fed bees have flown the least. There are few dead bees about, and only one shows signs of abdominal distension, and that is the only one that I withheld syrup from in the autumn.

To prevent every form of dysentery I feed every stock in autumn with a few pounds of the best sugar syrup, covering closely on top and sides with soft well-dried meadow hay, narrow entrance with space below ventilating floor, which gives an entire immunity from damp, unless upon the very top of hay on top of hive, which is the index to a dry hive and healthy bees within. The syrup will tide them over in safety until April, when an examination may take place, but as little as possible. I always make sure that March will not find hungry bees, it being the worst month in the whole year to have hungry bees or weak hives. But the considerate bee-keeper will seldom have to manipulate one way or another with bees during the winter and spring months, unless with chance nuclei not intended to be kept over winter during September. As the foregoing hints plainly show what to do in the case of an emergency, and what to avoid in winter and spring, I will now say something on another subject.

WINTER PREPARATION.

I have shown that bees can be kept healthy during winter; but this may be done, and yet with all care many hives may be lost on the sudden rise of temperature during January, February, and March, which takes place on the breaking up of a snowstorm or immediately after a snowfall when the day is lengthening. On these occasions the bees rush out of their hives in great numbers, either to be lost among the newly fallen snow or chilled to death in the melted water, rendered all the colder by the partially melted ice lying everywhere about where the snow has been trod, or in all hollows. To prevent any mishaps at these times the bee-keeper should be on the watch, and whenever signs of a rise in temperature is indicated by thermometer and barometer the doorways of the hives should be effectually closed, and ventilation afforded by some other part. On no account close the entrances of hives with wire-cloth or perforated zinc, as being sufficient for the purpose, for the bees will crowd to it, and then suffocation soon follows. The hive that cannot be properly ventilated on these occasions is a very imperfect one.

The beginner will now have a fair idea what a hive to winter bees in should possess. Long before the winter sets in site and appearance of the hive, as well as the arrangement of it, should be completed. Only the other day a loose cover of cloth was blown from a heap of odds and ends lying near the ground and blown between two hives, which marred the bees, and many were lost although the front was perfectly open. Perhaps during this time, when so much influenza is about, it may not be out of place to state that many such colds are contracted by the patient having previously heated himself by putting on more clothing than was necessary, just as I have often witnessed thinly clad children keeping free from colds until new shoes or other garments had been added. Something similar to this arises with bees when their doorway is contracted or widened during changes of weather in winter. A uniform degree of heat at all times is what should be studied with our persons, as we should do with hives of bees.

When bees are placed into a hive the first thing they do is to make the top of the hive air-tight, but in a great measure disregarding the sides, and wholly the bottom. Their instinct teaches them that any draught whatever above them has the evil influence of cooling the interior of the hive, sending moisture into the honey, and making the bees restive and unhealthy.

Although these facts might be apparent to a mere child, yet leaders in bee-keeping matters advocate in favour of the American plan of making a cavity overhead the bees either by bent sticks or a ceil of candy, a more unsuitable food for bees than honey, although excellent as a substitute when neither honey nor syrup can be conveniently given. The advocates of this space overhead tell us that it is the warm place of the hive where the bees are fond of creeping into. Common sense would say that the bees finding a draught overhead endeavour to fill up the vacuum, and by so doing they retreat above their natural stores, leaving them

unprotected from both animal enemies and the humid atmosphere, which renders honey unwholesome and the pollen of the hive a capital nidus for the germs of foul brood. Where is the heat to come from to heat the upper cavity with cold ceil of candy, but from the some bees that would, had Nature not been perverted, remained in their hive in a healthy state as Nature had dictated, keeping their stores wholesome and protected from damp and other enemies?

The beginner should use his judgment in detecting between right and wrong, and his wisdom in rejecting the latter. Some writers have led themselves and others astray by comparing bees to other animals' wants of breathing space, overlooking the fact that there is a wide difference between the insect and the biped or quadruped in their breathing functions. From 50,000 to 100,000 bees will cluster into a space, and be so crowded that more would have to lie out. Yet with only a very small doorway the whole cluster will remain healthy. Pack as many men in a proportionable space, with a proportionable doorway, an epidemic of some sort would soon be upon them.

It is altogether impracticable to make comparisons between bees and man. Bees require air, but a very small stream of it suffices from the fact that, unlike man or other animals, they carry a supply with them in addition to their immediate wants, and it is through this supply being heated in the system that enables bees to survive our arctic winters when allowed to repose quietly in that state termed hibernating by "A. H. B. K." This natural heated air given out by one bee and inhaled by another, has never been mentioned before, and the cause of dysentery amongst bees is when the arrangement of the hive is defective, or when bees are disturbed so as to exhaust the heated air, and are unable to take in and heat a new supply, disease follows.—A. L. B. K.

(To be continued.)

TRADE CATALOGUES RECEIVED.

Benjamin Wallace Knight, North Trade Nursery, Battle, Sussex.—*Catalogue of New and Choice Plants.*

T. T. Green, Duke Street, Settle, Yorkshire.—*Descriptive Spring Catalogue, 1890.*

Friedrich Adolph Haage, Jun., Erfurt.—*Illustrated Catalogue of Plants and Seeds.*

Webb & Sons, Wordsley, Stourbridge.—*Annual Catalogue of Farm Seeds.*

James Yates, Stockport.—*Catalogue of Vegetable and Flower Seeds.*
Strachan & Thomson, 145, Union Street, Aberdeen.—*Catalogue of Vegetable and Flower Seeds.*



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Drainage (F. M.).—We do not understand what you mean, for you first write malting very plainly, and then just as plainly matting. If you can state the nature of the drainage we will endeavour to ascertain its probable constituents.

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi, dozen ..	6	0	12	0	Flansalactes, each ..	1	8	7	0
Arum Lilies, per dozen ..	12	0	18	0	Foiling plants, var., each	2	0	10	0
Arborvitæ (golden) dozen.	6	0	4	0	Byzanth, 12 pots ..	7	0	10	0
Azalea, various, p r doz.	13	0	3	0	" (Roman) 12 pots	9	0	13	0
Begonias, various, per doz	4	0	12	0	Lily of the Valley, 12 pots	1	0	30	0
Balsams, per dozen ..	0	0	0	0	Marguerite Daisy, dozen	6	0	14	0
Caladiums, per doz. ..	0	0	0	0	Mignonette per dozen ..	0	0	0	0
Christmas Rose ..	0	0	0	0	Musk, p r dozen ..	0	0	0	0
Deutzia, 12 pots ..	8	0	12	0	Myrtles, dozen ..	6	0	13	0
Dracena terminalis doz.	24	1	42	0	Palms, in var., each ..	2	6	21	0
Dracena viridis, doz. ..	12	0	24	0	Primula (single) per doz.	4	0	6	0
Epiphyllum, per doz. ..	12	0	24	0	Rhodantha, per dozen ..	0	0	0	0
Erica, various, dozen ..	12	0	18	0	Saxatraga pyramidalis,				
Enonymus, var., dozen	6	0	18	0	per dozen ..	0	0	0	0
Evergreens, in var., dozen	6	0	24	0	Solanums, per dozen ..	6	0	12	0
Ferns, in variety, dozen	4	0	18	0	Tulips, 12 pots ..	8	0	10	0



SEED TIME.

AGAIN has the time come round for the selection of enough seed for sowing requirements during the coming spring and summer, and it is of especial importance that the selection should be made with judgment, and due care taken both as to sorts and per-centage of germination, in order to reduce liability to loss or failure as much as possible. An outlay approaching the borders of extravagance upon seeds is advisable upon the principle that none but the best should be sown, best in the full meaning of the term—i.e., in purity, soundness, productiveness, and general high quality. It will not, however, answer to procure seed corn in large quantities from seed merchants, and we have found that an intimation of our requirements to local factors at market soon renders superior samples forthcoming at rates only a little above ordinary market quotations. So important do we consider it to sow pure samples of the very best description, that all seed corn, whether purchased or home grown, is screened repeatedly till we are satisfied that all tail corn and weed seed is got rid of. It requires a modern screen in perfect order to do this work well, and this is one of the reasons why we never purchase an old or much worn winnowing machine.

Of Barley there is no better sort than Webb's Chevalier, both for quality and quantity. The grain is large and heavy, and the ears very full and long, but we have never had such ears of it or any other Barley as the marvellous examples of novel sorts shown by the illustrated advertisements of certain specialists recently, and we have had upwards of 300 acres under this crop for several years. We have had ears of Chevalier with twenty grains on each side; that was our highest flight in Barley culture, they were magnificent ears, and the yield per acre was remarkable for its abundance. There is no doubt that mixed soil is the best of all for Barley; and though we have heard legends of wonderful crops of fifteen coombs an acre on heavy land, experience has shown it to be a most uncertain crop on such land, and also that it answers to give preference to such crops as Wheat, Oats, Beans, and Peas for it. If Barley must be grown for special reasons on heavy land, then it will be found that the beardless variety answers best.

Of Oats, Black Tartarian and Canadian White are equally good for spring sowing, but good samples of the Black Oat are scarce. One may go round to the stands of an entire market and not find a genuine sample of really first-class "Black Tartars." They are to be had, however, and we claim for them the best land and the highest culture, such as they receive in Scotland, at Lothian farms for example. When Wheat was the leading corn crop, it was customary in East Anglia to grow just a field of Oats, and the custom still finds observance on many a farm. But we have proved repeatedly that Oats repay one now for high cultivation if only the seed sample and land are both right. For heavy land especially we have no more profitable crop, few so good, and it certainly ought to replace Barley entirely on such land.

Clover sowing specially for seed will still be done, but we cannot hope ever again to find it as profitable as it used to be. The quantity left for seed last year was very large, much was spoilt, and much got so badly that fresh seed must be ordered with caution. The price is kept down by heavy importations of foreign seed, which is said to be excellent; but such seed so frequently contains Dodder that it requires almost microscopic inspection before purchase. For forage mixed layers are more and more taking the place of Clover pure and simple, and here the farmer can very well place his orders in all confidence with the specialist seedsmen. Nutriment in a more concentrated form is said to be found in the latest new sorts of Mangolds. The difference is merely one of degrees, and while we are able to obtain such heavy crops of Orange Globe and Long Red as we did last year, we shall have nothing to say to more expensive novelties. The seed should be ordered now, so also should the Swedes and other Turnips, and then the Mangold sowing can be done early in April, and the first sowing of Swedes, as the land is ploughed after the sheep folds on the Rye. Never heed the outcry of croakers about early Mangolds bolting to seed or Swedes becoming mildewed, but sow early, single early, and keep the hoes going early and late—horse hoes as long as they can be used without injury to the plant, and hand hoes while there is a weed to be seen.

WORK ON THE HOME FARM.

Never was the value of efficient under drainage more apparent than now, and the superiority of bush drains to pipe drains for clay land is well shown. Clay is so liable to seal the joints of a pipe drain and to render it practically useless, that although bush drains have to be renewed in about eight years they have preference with us for very heavy land, and we have been turning some overgrown hedges to account for that purpose both for new drains and for opening some stoppages in old ones. A few pipes only are used for the "eyes" or outfall of each drain, which is usually alongside of a deep ditch. The chief faults in the drains were seen and marked on the farm plans last summer, a "wet" place in a corn field caused by a faulty drain always being visible by the yellow and stunted growth. We may here note the importance of having a large working plan of every farm drawn to scale with the position of each drain clearly defined in it, so that it can always be found, and any fault marked and corrected in due course. The date of the making of each drain should also be entered, and also the material used. This is really a matter for the estate agent, but it also concerns the tenant so much that he should always have a duplicate of the plan, even if he is put to some expense to obtain it.

The action of drains depends very much upon the mechanical condition of the soil, and it has been interesting and highly satisfactory to see how the passage of rain water through the soil to the drains has been accelerated by heavy dressings of burnt clay, which have been worked in by plough and cultivator. This clay burning is done as opportunity offers during summer, and by it the quality and condition of the soil becomes much improved. We have been doing it gradually for some time, so that the expense has never been a heavy item in any year, while the progress made has been steadily going on year by year, and the value of the land has gradually increased. It is clearly the most economical and efficient way of soil division on a clay farm; it might even be said to be the only way on an outlying farm distant from any source of other hard materials.

METEOROLOGICAL OBSERVATIONS.

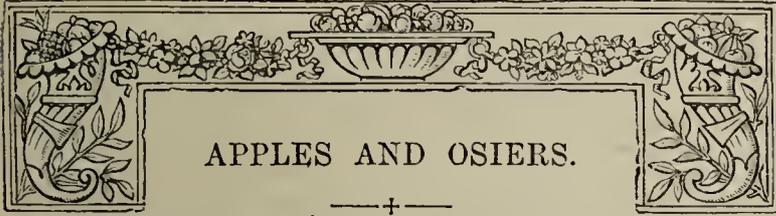
CAMDEN SQUARE, LONDON.

Lat. 51° 39' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1890. February.											
Sunday	2	30.153	44.8	42.4	W.	43.0	47.9	43.4	55.7	4.0	—
Monday	3	30.4.7	31.3	31.2	N.	41.6	46.1	27.6	67.2	25.9	—
Tuesday	4	30.215	33.9	33.9	N.E.	39.8	45.8	30.2	68.9	26.9	0.010
Wednesday ..	5	30.087	39.9	39.3	N.E.	39.5	43.9	37.4	49.1	31.8	0.015
Thursday	6	30.261	34.7	33.0	N.E.	38.9	43.9	33.1	73.3	28.4	0.010
Friday	7	30.416	35.0	35.1	E.	34.9	42.2	34.4	48.6	29.0	—
Saturday	8	30.413	32.4	31.4	E.	38.2	42.2	29.9	70.2	25.6	—
		30.290	36.6	35.3		40.0	44.6	33.1	61.9	19.5	0.035

REMARKS.

2nd.—Fine, with some sunshine in afternoon; clear moonlight night.
 3rd.—Fog till about 9 A.M., then sunshine throughout.
 4th.—Slight fog early, bright fresh day.
 5th.—Dull damp morning; a little sunshine in late afternoon; bright night.
 6th.—Cloudy, with slight snow and rain till 11 A.M., then sunshine and slight showers alternately.
 7th.—Cloudy but fine.
 8th.—Unbroken sunshine.
 A very fine and seasonable week. On the afternoon of the 4th, when it was warm and fine sunshine here, it was so foggy in town that the cab had the lamps alight.—G. J. SIMONS.



APPLES AND OSIERS.

ON page 62 of the issue of the *Journal of Horticulture* of the 22nd ult., a Blantyre correspondent refers to packages for fruit, and observes that "Willows might occupy many acres of what is at present uncropped ground, and the making of hampers would give employment to many unable to perform other work." It is not on the question of hamper or basket making that I am about to enlarge, but will merely say that closely and strongly made round hampers are very suitable for and largely employed in the transit of fruit of various kinds for the London markets. They are known in the trade as sieves. A bushel sieve, similar to the one illustrated on page 115 of the essay I wrote for the Fruiterers' Company, is 17 $\frac{3}{4}$ inches in diameter at the top, 17 inches at the bottom, 11 $\frac{1}{4}$ inches deep, and holds ten and a half imperial gallons. The sieves or hampers are lined with paper, usually of a bluish tint, for contrast with the fruit, the ends of the paper being long enough for turning down and covering it. With a little fern or hay on the top, if not without, these packages can be stacked on the strong rims of each other without the contents being injured. They are similarly packed for returning empty, and when conveyed by road are piled up as straight as loads of hay are in the country, but a good deal higher, and made secure with ropes. Many salesmen supply these sieves to growers for sending their fruit to market, and the most uniform and best samples invariably meet with a ready sale. But woe to the man who "works in" trash below a covering of "toppers," for his character as a "dodger" flies like bad news, and his wares are shunned accordingly.

"W. T.," the correspondent alluded to, who is apt in contributing suggestive hints, says Willows might occupy many acres of uncropped ground, by which he possibly means ground that is not well adapted for growing food produce. The proposition is quite true, and much swampy or naturally wet land is so occupied, paying the owners or tenants much better than leaving it in a wild or uncropped state. But my object is to show that on certain soils the best of Apples and the best of Osiers can be grown together without either acting in the least injuriously on the other; indeed, it is not beyond the bounds of probability that the Osiers benefit the Apples rather than otherwise.

The combined Apple and Osier culture that I have had the pleasure of inspecting is conducted well and profitably a mile or two from Southwell in Nottinghamshire. The soil is strong, approaching clay, and for a number of years was of slight value to the owner. Several acres were purchased at a low price about fifteen years ago, and placed under the dual occupation of what, on paper, must appear a little incongruous—Apples and Osiers. Strong retentive soil is generally condemned for Apple culture, while Osiers and quagmires appear a natural association; but in the extensive plantation in question it would be difficult for the most experienced observer to determine whether the growth of the Apple trees or the Osiers is the more satisfactory. The best evidence that both have answered is found in the fact that the fee simple value of the land has much more than quadrupled during the period named; indeed, so satisfactory has been the result that a large extent of adjoining land has been similarly planted, or altogether, I think, about 40 acres.

The favourite Apple for the purpose is Bramley's Seedling on the English Crab stock—not on so-called Crab stocks raised

from the pips of cider Apples. The trees are in the best of health, free from canker and other ailment, and combine sturdiness with vigour and productiveness. Some rows of other varieties were planted in the first instance, but the appearance of the trees shows in an unmistakable manner the superiority of the former, and the later plantation is either all "Bramleys," or all that could be had, with an outside row of Damsons.

I do not remember a more remarkable sight than sitting in a "trap" and looking over the hedge across the established plantation. The Apple trees were planted 30 feet apart—standards on 6-foot stems—but none of them was visible, but only the heads of the trees, 12 to 15 feet in diameter, just above what was like a waving sea of green—the Osiers. These were quite 6 feet high, and not a blank nor faulty place to be seen. Moreover they appeared to grow practically as well close up to the stems of the trees as between the rows. There might in places be a suspicion of thinness immediately under the trees, but there was perhaps as much of fancy as fact in the idea; and what was conclusive was the broad and important lesson conveyed, that the Osiers did not deprive the Apples of nutriment, nor the Apples the Osiers. On the contrary, it is almost certain that the latter benefited the former, and this in two or three respects. First by abstracting moisture which otherwise might have been in excess for the Apples. Secondly, by the myriads of leaves falling annually from the forest of stems, forming a stratum of humus on the clayey soil—exactly what such soil needs. And thirdly, by sheltering the trunks of the Apples, which, in consequence, seem to swell more "kindly" than under full exposure. They bear the gloss of health that may be compared with the coat of a sleek animal.

The return to the land in the fall of leaves is evidently full compensation for whatever may be abstracted from the Apples by the Osiers. In all likelihood these soft pliable annual shoots take little out of the soil besides water, and leave the bulk of the phosphates, potash, and other mineral ingredients behind for the fruit trees. Be that as it may, these have obviously what they need, and nothing is added artificially. Trees in better health and bearing condition cannot well be imagined, and it is not conceivable that they could possibly be better if no Osiers had been grown among them, and it is generally believed would not be so good. The under crop costs next to nothing to grow, never fails, pays a good rent for the land, with a substantial margin of profit on that crop alone, apart from the Apples. And what about these?

I have not inquired about those particular trees, but I have seen trees that were planted in good soil fifteen years ago, which have produced £2 worth of fruit each as their last gathered crop, and am credibly informed of others of even greater value; but I have seen sufficient without detailing supplied information for satisfying myself of the great value of this Nottinghamshire Apple as an orchard standard. It may possibly be too robust for bush culture, but the effects of dwarfing stocks in arresting its natural vigour remains to be proved, for until recently its introducer, Mr. Merryweather, has only worked it on the Crab. But there are bushes and bushes, and I suspect a big bush of Bramley bearing 15 to 20 pecks of fruit quite a possibility, and such bushes would suit me very well, as I have no faith in stunted pigmies for usefulness. There is plenty of room above ground for the branches to extend, and I like to see them laden with fruit higher than a man can reach rather than having to stoop down to gather it.

However, as a standard Apple Bramley's Seedling has proved its great value. Ten yards apart is close enough for planting in good soil. The trees have then room to develop under the influence of light and air, and thus become the most fruitful, while the crops can be gathered with facility. The fruit is large, colours fairly well, and is of the first quality when cooked, possessing some of the sprightliness of Dumelow's Seedling with the sweetness of the Blenheim Pippin.

The mention of the last-named Apple reminds me of much

praise that has been showered on it in the *Times* and elsewhere. I say nothing against the quality of the fruit nor its appearance, but to recommend that this variety be largely planted for profit, and especially by persons who are neither owners of land nor of much money, is, I am convinced, very far from being safe and sound advice. I have planted trees of it and waited for the crops, also Bramley's Seedling, and were I going to plant a large orchard tomorrow for profit I would rather pay half a crown each for good trees of the latter than have equally good examples of the former as a gift if they were also planted gratuitously. I am so hardened by stern realities as to pay little heed to persons who write about fruit, yet have not been trained in the school of experience; but when I find a gardener, who is nothing if not practical, who advocates the planting of this slow and shy bearing Apple for profit because, forsooth, it headed the poll in the number of selections at the Chiswick Conference, and when he has condemned the variety to me because of its shyness, and agreed that I acted wisely in excluding it from a short list of sorts for cottagers and small holders of land in the essay above noticed, I am tempted to put him into a very awkward corner in which he would, perhaps, not be very comfortable, but I refrain at present.

The mere position on the poll, unless the ages of varieties are taken into account, is not only worthless as an indication of merit, but misleading, because, obviously trees of those sorts which have become popular favourites must have increased in proportion with the period of propagation, and in the case of the Blenheim this is at least seventy years. Judged by that fair test the Blenheim is in a false position, and this practical gardener may as well say that because sparrows are more numerous than geese the former are the better birds, and because donkeys are more plentiful than mules these latter are inferior, therefore he will praise the donkeys.

If a national vote were taken for determining the best orchard standard Apples possibly the Blenheim would head the list, and Warner's King would poll far higher than Bramley's Seedling; but if all the voters had grown the three together over a period of twenty years, and noted the value of the crops, I have not the slightest doubt that the Nottinghamshire Apple would head the poll by a very long way; yet only two dishes of it were staged at the Chiswick Conference in 1883 against 115 of the Blenheim. What value can a poll be under such condition for denoting the relative merits of two varieties when not one voter out of a hundred has grown them both for comparison? I can understand a writer whose experience in fruit culture is limited founding an argument on such a false basis, but I cannot understand a gardener doing so who claims a position as an experienced grower of hardy fruit. Perhaps it may be well to add that the trial above suggested is not hypothetical, but an accomplished fact, and the much-praised Blenheim shows to great disadvantage, as judged by the results attained under equal conditions.—J. WRIGHT.

FLOWER CULTURE FOR PROFIT.

CHRYSANTHEMUMS.

MANY growers of Chrysanthemums for sale had a somewhat unfortunate experience with the bulk of their stock of plants during the past season, and may perhaps feel disposed to dispute the fact of their being classed as profitable in any case. Owing to the abundance of outdoor flowers—for Chrysanthemums were never better or more plentiful in the open than in the autumn of 1889, as well as the great increase in the number of growers—ordinarily grown plants did not pay after the end of October; it was quite useless to send them to the markets in fact. When the pot plants of Madame Desgrange and C. Wermig were first well into flower there was a fairly brisk demand for them, somewhere about 18s. per dozen bunches, and in some instances a still better price was forthcoming. A bunch in our case, and which I believe to be the rule, consists of one dozen good blooms or sprays, and this number or more ought to be forthcoming from every plant in a 9-inch pot. Even if the blooms from each plant on an average only realised 1s., this still leaves a good margin in favour of the

cultivator. When, however, the price for either white or coloured varieties drops to 3s., or even less per dozen, with commission and carriage to be deducted, the balance is all against the grower, and rather than risk a similar recurrence of low prices the prudent man will considerably alter his practice—that is to say, will attempt to grow what really will pay.

The question naturally arises, What will prove profitable? and this I can answer satisfactorily. Instead of growing large numbers of the early and midseason free-flowering varieties in the old fashion I would advise that only a moderate number of the following be grown—viz., Mrs. Cullingford, dwarf, early white; Madame Desgrange, yellowish white, early; G. Wermig, a yellow sport from the latter; Mrs. Hawkins, bronzy yellow, early; W. Holmes, bright red, an early Cullingfordi; La Vierge, dwarf, pure white, second early; Lady Selborne, tall grower, pure white, second early; Sœur Melanie, a miniature Elaine; and the last named be grown principally for bunching. Now is a good time to place sound strong cuttings of these in ordinary Pelargonium boxes, and with the aid of gentle heat all will root quickly. When well rooted they ought to be pinched back, and when breaking afresh be placed singly into 3-inch or rather larger pots, all being strong stocky plants. Keep the plants growing in a pit or frame near the glass, stop once more, and in the course of about ten days the bulk may be shifted direct into 9-inch or somewhat larger pots, in which size they are to flower. Being given a somewhat large shift water must be sparingly given at first, but when once the soil is well filled with roots the soil ought never to become really dry. Turn out the plants into a sunny yet fairly sheltered spot towards the end of May, set the pots, or partially plunging them in a bed of ashes. Further cultural details consist merely in placing a stake to each plant, the principal growth being loosely fastened to these. Being well attended to, given a little weak liquid manure occasionally after branching has commenced, and abundance when the buds are showing, fine branching heads of bloom will be produced, and which early housing will preserve from early frosts and heavy rainfall. Too frequent stopping is the greatest blunder that can be made with this early batch of plants, a few strong early formed shoots producing much more bloom than considerably larger plants obtained by pinching back several times. Bushy plants in small pots also sell readily, realising in country markets 12s. to 18s. per dozen, and the varieties named are among the best that can be grown for that purpose.

During November and the early part of December the demand for Chrysanthemums in bunches is, as I have previously pointed out, of a very limited character. It is unwise therefore to grow many of these, though it is advisable not to wholly discard the system. The best for bunching at this date are Elaine, Mons. Astorg, greyish white; Fair Maid of Guernsey, pure white; Mons. Garnier, bronzy red; Cullingfordi, red; Elsie, creamy white; Peter the Great, yellow—all Japanese varieties and incurved; Mrs. G. Rundle, early white; Mrs. Dixon, yellow; and Jardin des Plantes, rich yellow—Japanese. Middle. Lacroix and others with twisted florets are sometimes grown for bunching, but they do not "take" so well as those with broader reflexed or incurved florets, as they travel badly, and to the uninitiated they present a somewhat withered appearance. This section ought to be grown much as advised in the case of the earlier varieties, but if thought desirable may well be stopped a third time, and be flowered in 12-inch pots or planted out in the open, and potted up in September. The flowers will be much finer and sell far more readily if subdudding is resorted to, not, however, with the intention of growing a few blooms only, but rather with the view of securing one good bloom instead of several small ones on each terminal shoot. The former we got rid of readily last season at 2s. per dozen blooms, and from some of the plants we cut as many as three dozen at that price at a time when bunching flowers could hardly be given away.

Last season it came as a revelation to many, though it was not new to me, that specimen blooms, not necessarily those which would gain premier prizes, but only ordinarily good samples, could be disposed of in most provincial towns at remunerative prices, and at a rapid rate. In 1888 we found specimen blooms sold well in towns generally, and at still better prices in London, and the demand was quite as brisk last November and December. The prices range from 4s. to 6s. per dozen wholesale, and plenty were retailed at more than double the latter price. Seeing that a plant grown in a 9-inch, or rather larger pot, 12-inch pots suiting the very strongest growers, is capable of producing from six to a dozen good blooms, it requires no great stretch of imagination to detect the profit attached to this method of culture that thus results. As a rule the Japanese varieties are in most demand, though occasionally a few fine incurved flowers work in well. We get much the same price for nearly all the specimen blooms, though there is no

doubt the white, yellow, and red shades are the most popular either for ladies' wear or for table-decoration. Some of the most profitable are Fair Maid of Guernsey, Elaine, M. Astorg, Mdle. Lacroix, M. J. Pigny, Avalanche, and Mrs. J. Wright, all nearly or quite white; Peter the Great, Thunberg, Mr. H. Cannell, and Golden Dragon, yellow; J. Délaux, dark red; Jupiter, bright red; Carew Underwood, rosy bronze; Japonaise, orange; Hiver Fleuri, white and rose; Duchess of Albany, orange and red; E. Molyneux, crimson, gold reverse; Comte de Germiny, yellow, striped crimson brown; and Valle d'Andorre, chestnut red.—M. H.

HARDY SHRUBS FOR FORCING.

DEUTZIA GRACILIS.

DEUTZIA GRACILIS is unquestionably one of the most useful plants we possess for flowering during the winter and spring months for conservatory and other forms of decoration. The best method of raising a stock of plants for forcing purposes is by cuttings of young growing shoots taken off after flowering. The shoots should be soft, about 2 inches long, and if cut to a joint every one will root when inserted in sandy soil and plunged in brisk heat in the propagating frame. It is necessary to keep them close and shaded from the sun until they are rooted. As soon as this takes place gradually harden them by exposure to light and air. Before they become rootbound they should be transplanted about 2 inches apart in shallow boxes. A suitable compost is formed of equal parts of leaf mould and old soil from the potting shed, in which bulbs or other plants may have been growing for a short time. A good watering will be necessary, and as soon as they commence growth the point of the plant may be removed to induce them to branch. If the cuttings are rooted early in the season they may be pinched when they have grown about 2 inches in length. As soon as the young plants are growing freely in the boxes harden them gradually, so that they can be removed to an intermediate temperature, where they may remain until May, when they may be again hardened, grown in cold frames, and prepared for planting out the first week in June.

The position selected outside must be an open one, where they will be exposed to the sun. The soil in which they are planted must be well manured, and a liberal quantity of leaf mould stirred into the surface as well. The last is not really necessary, but where it can be practised the plants grow more rapidly than when the ground is manured in the ordinary way. If the plants are to be lifted as soon as they are large enough for 5 and 6-inch pots plant them 6 inches apart in rows 1 foot asunder. When removed from the box the method we have found best is to cut them out with a knife, so that each plant has a ball of soil attached to its roots 2 inches square. It may be necessary to water them after they are first placed out, and if the surface can be covered with leaf mould or other material to arrest evaporation so much the better. Failing this the hoe should be frequently used amongst them until they show signs of vigorous growth. In the following February cut them back level with the ground, which will induce them to push up strongly, and this must be repeated until they are large enough for lifting and potting.

Where there is no convenience for raising and growing Deutzias for a time under glass they can be treated throughout as hardy plants. Insert cuttings of growing shoots under handlights or a bellglass in a shady position in light sandy soil early in August. If well watered and the glass placed over them the only attention they will need afterwards is to water them if the soil becomes dry. If in a shady position they will be rooted before they need attention in this respect. When they are rooted gradually harden and ripen them. During showery weather towards the end of March or April they should be planted out as advised for those raised and grown in boxes. If ground is an object, dibble them in thickly together so that they are not crowded, and transplant them the following season. However carefully the work may be done the young plants receive a slight check, and they do not make such satisfactory progress as when planted out permanently at the first.

Lift the plants when they are large enough towards the end of September, or early in the following month. If plenty of leaf mould has been stirred into the soil the plants will be secured with plenty of fibrous roots. These should be reduced carefully according to the pots in which they are to be placed, employing good loam, one-seventh of decayed manure, and a little sand. Press the soil firmly into the pot, and one crock at the base will be ample. Stand the plants in a shady position for a few days, and syringe them freely two or three times during the day. This will prevent the foliage flagging, and roots will commence forming in a short time. Plunge the pots in a sunny position. If the surface of the

soil is covered with the plunging material, and this is kept moist, no water will be needed at their roots beyond the small quantity that finds its way to them by syringing, which may be continued until the plants will bear full exposure without flagging. These lifted early and given the treatment described will have their pots nearly full of roots by the time frost destroys their foliage. We have used them for late flowering in spring without signs of injury, but we do not advise this course to be practised.

Hundreds are ruined that are annually purchased, potted, and forced, during the winter or spring months. Plants that are lifted after the foliage falls, or when approaching that stage, potted and then forced, may flower freely enough, but they never make any but the most puny growth the following season. In many cases it is not stronger than that of plants the first season they are raised from cuttings. To have Deutzias in the best possible condition for forcing, lift them early, and prune closely back after the foliage has fallen, and then grow them one year in pots. Pruning may be done at any time during the winter, and the pots can be plunged in cold frames. This will induce early growth, and consequently early ripening in autumn. The plants may be hardened so that they can be grown outside from the end of May. When the pots are full of roots weak stimulants may with advantage be given, and the result will be stout shoots from 1 foot to 18 inches in length. After they have flowered they should be cut back, allowed to start again into growth, and then placed into pots 2 inches larger. If forced moderately early in the season they must be started again into growth, and grown under glass until they can be hardened, and the weather is sufficiently genial for placing them outside. Large bushes with short twiggy growths flower profusely, and are produced by the removal of decaying flowers only. Pruning in this case must not be practised. But, however well these may look, we prefer to prune them close back after flowering. Clean growths, varying from 2 to 3 feet in length and profusely flowered, are much more graceful and attractive for decorative purposes than those crowded with short growths and old wood.

To keep a stock for forcing in the best possible condition Deutzias must be well cared for after flowering and encouraged to make their growth for a time indoors. When turned outside, or even removed from structures in which they have flowered to others that are cold and draughty, they are seriously checked and refuse to grow; in fact, they soon become stunted and useless. When subject to early flowering, however good the treatment may be, they will, after their pots become crowded with roots, decline to grow luxuriantly. When well established specimens are in this condition they should not be thrown out as worthless, for one year's rest is ample to restore them to vigour. After flowering cut them back as usual, and if they have been forced early they will naturally ripen early, and may, about the middle of August, in some cases earlier, even in July, be turned out and their roots reduced one-third. Treat them afterwards in the same way as young plants. While growing, abundance of water is necessary; in fact, in no stage, not even while at rest, should Deutzias be allowed to become dry. On the other hand they must not be over-watered after they are potted until they are rooting freely in the new compost.—N. G.

EMIGRATION OF GARDENERS.

(Continued from page 125.)

FRUIT.—Strawberries succeed famously, especially in Long Island. They, however, are not given any particular culture. When in full season they may be had at 6 cents per quart. When first coming in from Florida, as they do in March, the price is 1 dollar per quart, but they are only Strawberries in name. Gooseberries do not succeed, or Black Currants. Red and White Currants thrive tolerably in shady places. Raspberries do capitally, also Blackberries, which are grown similarly to Raspberries—*i.e.*, cutting out the old and weak wood, the fruiting canes being cut back about half their length, and four or five of the strongest reserved to each stake, the stools are 5 feet apart. The fruit is very large, and very much esteemed for dessert, largely used also like Strawberries, with cream. They are grown in fields by the acre.

Apples are much the same in Maine, but are finer in colour, with a corresponding lack of juice. Pears do well, also Cherries, but not Plums; they are not good only in the hills in New York State and elsewhere.

Peaches do splendidly. The trees are half-standards, the treatment being briefly to well thin the old wood, leaving the young, every year providing for itself. Maiden trees are planted in rows about 20 feet apart, and 10 to 12 feet asunder in the rows, ground cropped with Sweet Corn until the trees commence bearing. A few

fruits are produced in the third year; the trees are in full crop at the fifth, and after five years bearing the trees are replaced, or are seldom left over a dozen years on account of the yellows and the susceptibility to red spider. They are grown by the 100 acre in Delaware. Bradley's fertiliser is used extensively in Peach culture, a good sprinkling around each tree before rain. In some years good fruit can be purchased at two for 1 cent.

Grapes are grown in vineyards about St. Louis, Missouri, on espaliers, three wires about 18 inches apart. Six feet is allowed between the rows or trellises. The Vines are mostly trained or treated on the spur system, but the rod also obtains. The fruit is mostly used for wine making. In New York State at the foot of Catskill Mountains on the banks of the Hudson river, Grapes are grown on the single rod system—*i.e.*, as cordons. The shoots are stopped two joints beyond the fruit, and all laterals are kept closely pinched until the fruit is set, after which all growth is allowed to remain so as to prevent the sun scorching the berries, thinning out the growths only where they are very much crowded. Concord is the favourite Grape grown for dessert, it being a black oval kind. Manure is applied in the fall and forked in then. Fertilisers are applied during growth before rain. After the Grapes are cut the knife is brought into play, cutting away all useless wood, so as to let in sun and air for the perfecting of the wood and buds. When the leaves begin to turn yellow the current year's wood is cut back, the final pruning being done early in spring, or a month to six weeks before activity commences. In spur-pruning three or four buds are left, whilst rods are pruned to a plump bud on well-ripened wood.

Cultivators in the United States employ artificial manures largely, the object being to get the crops up and growing away quickly, so that they may be less susceptible of injury from insect pests, and better able to contend with the trying ordeal of the heat and drought. Our informant says the Maine farmer formed his own artificial manure as follows:—Taking care of all the bones, they were bruised on a hard substance with a hammer, or half-inch bones were purchased. These were saturated with urine, placing in a tub or hole in the ground in a dry place and kept dry, with wood ashes in equal proportion to the bones, or 1 bushel half-inch bones saturated with urine and 1 bushel wood ashes, the latter being also saturated with urine, covering with dry earth 2 inches thick. In about three weeks the bones are dissolved, when a bushel of pigeon or fowl dung is added, the whole being well incorporated, which form a paste-like mass, in which state it is placed in a dry place, and by spring it forms a hard mass, which, however, breaks up readily, and being fine is readily applied to any crop requiring a stimulus, a good handful being sufficient for a couple of square yards.

In concluding these notes I desire to state that our prompter strongly advises those who are doing well here to leave it alone. They may do as well, perhaps better, in the United States as far as money is concerned, but it will be had at a sacrifice of home enjoyments, and of trying conditions of climate to which all do not become acclimatised satisfactorily to themselves. Those that cannot from incapacity, lack of energy and physical force do here will not succeed there, it being no uncommon occurrence to find numbers picking up a precarious existence in the Atlantic seaports, whose one cry is to get sufficient money to pay their return passage to England. "A man," he says, "that cannot on occasion work his way among civilised communities by land or sea has no claim to that designation, being little better than an old woman."—UTILITARIAN.

PLANT FOOD.

(Continued from page 104.)

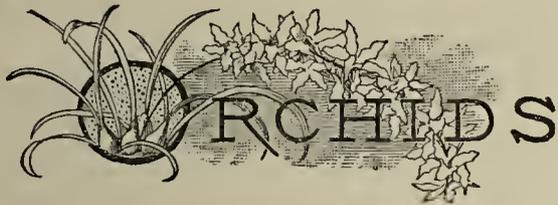
It will readily be seen that a good general manure ought to be composed of material which will yield ammonia and phosphoric acid in the largest proportion, and with a less amount of potash and lime. It is at this point that the difference between farming and gardening practice is most pronounced, and I think not in favour of the latter. The gardener purchases a manure, necessarily expensive, and applies it to all kinds of crops. The farmer, on the other hand, if he purchase a special manure, selects one which exactly suits his crop. If for Turnips, a phosphatic one with a good per-centage of ammonia. If for Beans, then a potassic compound is chosen. Or, he may, by the application of a simple dressing of nitrate to his Wheat or hay, increase the crop by 50 per cent. at a small outlay. But I think in most gardens manuring might be much simplified; for if in good heart there ought to be a sufficient quantity of potash to serve any crop in gardens. A dressing of quicklime will do much to set this free, as well as form a corrective to those acids which cause sourness, while the texture of the soil is sure to be improved. But even if quicklime is not applied, I

incline to believe (for on this point I can only speak from results, unconfirmed by science) that the employment of superphosphates, or one or other of the materials which supply ammonia, will of themselves set free sufficient potash for the need of crops. If that be so, gardeners may safely employ for garden use either superphosphate of lime or ground phosphates, to which, if required, nitrate of soda or sulphate of ammonia may be added, either at the time of application or some time thereafter. Either kind of manure is best applied as a surface dressing, and the time to select for application is while the ground is wet. Superphosphate, especially when newly made, destroys every bit of vegetable life it comes in contact with; consequently care is necessary to sow on the soil alone, though during wet weather less harm follows, as the rain washes the foliage clean before mischief ensues. The action of superphosphate is greatly quickened when applied whilst the ground is wet, and when rain follows its application. The moisture in the soil and atmosphere causes a quickened root action, and the more soluble of the phosphates are at once brought into contact with these young roots, with the result that immediate and continued benefit follows.

It always seems to me that there is a tendency to treat chemical manures in a mechanical manner—just so much to be given at a particular time, and leave the rest to Nature. Now, it is just possible and very probable that a dressing of manure applied in the manner just noted will put a plant into a condition ready to receive a further supply. The action of superphosphate in particular is to increase the number of active, feeding roots, and I have many times been interested to watch the rapidity with which new roots come upwards to the surfacing on potted plants, spreading over, and quickly getting into contact with every little piece of it. Much the same thing occurs in the case of inside borders, which are regularly watered at short intervals. The tips of the roots protrude through the surface, and no doubt enjoy themselves very much. Of course, it is very necessary to exercise judgment as to when to leave off manuring, as also to take into consideration the animal manure which the crop may have at command. In the case of Celery, for instance, which is planted in soil with the addition of 2 inches or more of good cow manure close beneath the roots, the continued application of either superphosphate or of ammonia would simply result in the loss of the crop during a moderately severe winter, while a dressing not later than midsummer would have the effect of quickening growth without any danger of bad effects when growth ought to have ceased. Much the same remark would apply with regard to Onions which are grown for keeping; but if we want either Celery or Onions of a large size rapidly, without taking into account the question of keeping, then repeated surfacings is the best thing to do. This brings us next to consider the part of the plant we wish to use, and the best method of manuring in order to get the best results in each case. Both Celery and Onions are biennials, and the life work we wish them to fulfil is simply to make the most of their first year. The same remark applies to Turnips, Carrots, Beetroots, and Parsnips. We endeavour to cram them with carbohydrates, and find a light open soil enriched with phosphates and kept duly moist gives the best results. Potatoes represent a different class altogether. Like Jerusalem Artichokes, and Dahlias among flowers, the plant at the same time it is endeavouring to reach its highest destiny—the production of flowers and seeds—is also forming an underground stem with buds to carry its life work on in the succeeding year. In ordinary circumstances to manure highly for these crops is to defeat the promotion of these underground stems. In each case we secure a magnificent top growth with flowers, fine and in abundance in the case of the Dahlia, but the tubers are sure to be small, and in the case of the vegetables possibly not abundant. You see, if we wanted fine top-growth exclusively nitrogenous manures would be the very thing; but in order to get what we do want just sufficient nitrogenous manures to give the plant a robust start must be employed, and a manure of a potassic nature, or one that will bring latent potash into working order, be the predominating substance; and so with Peas and other legumes. A nitrogenous manure will form a magnificent crop of haulm, but in order to secure flowers and Peas potash is absolutely necessary. In our own case these crops are never directly manured, but if manure were needed it would be applied of a kind either to free potash or to yield it directly.

I think it is no uncommon occurrence that the particular elements wanting during rapid growth in the summer months is not so much any chemical or animal manures, but that wonderful combination of oxygen and hydrogen called water. The mere fact that from 75 to 95 per cent. of the structure of the plant is simply water, would of itself point to the absolute necessity of a moist soil to keep up a full supply during hot weather, but when it is further understood that water is the medium by which the gaseous agents and minerals are conveyed from the soil and throughout the plant economy, and that the roots themselves are absolutely

dependent for their activity and being on moisture, the necessity of water to crops in full swing will be emphasised. Speaking from experience, I believe the most important agent to successful outdoor culture during hot weather is an unlimited and easily accessible supply of water. No matter how fertile the soil may be, or however abundantly it may be supplied with fertilisers, an insufficiency of moisture will render these absolutely without any good effect. While, on the other hand, with abundance of water fertilisers may be used to the utmost extent, and the crops be benefited in the proportion they and water are employed. I will close this paper by drawing attention to a point long ago noted by chemists, and for a much longer period known and acted on by gardeners—viz., that young plants require very liberal treatment, quick healthy robust growth in the earlier stages laying the foundation for a big harvest.—B.



ODONTOGLOSSUM SCHROEDERIANUM.

SEVERAL orchidist friends have communicated with me respecting the above-named *Odontoglossum*, of which an illustration was incorporated in my notes on hybrid Orchids last week. Mr. F. Sander of St. Albans points out that Professor Reichenbach was undoubtedly wrong in regarding this as a natural hybrid, for it is as much entitled to be considered a true species as many others in the genus. Then came a pleasant letter from M. Godefroy-Lebeuf of Argenteuil, editor of *Le Jardin*, in which he says, "I do not know why Reichenbach regarded this as a hybrid. He could not ignore the locality it comes from, and what he says about the plant is obscure. *O. Schroederianum* is a true species, and it is found in places where *O. tripudians* and *O. Pescatorei* have never grown. I know the place, but it is a secret that I cannot divulge." The last statement about the locality in which the plant is found is interesting, and certainly appears to be conclusive as to its non-hybrid origin.

A GIGANTIC ORCHID.

MR. F. SANDER of St. Albans calls my attention to the following letter, which recently appeared in a London daily paper, from Mr. Arthur Keyser, Kwala Kubu, Ulu Selangor, Selanga, Straits Settlements:—"It may interest some of your readers to hear of one of the largest Orchids that has ever been seen in this country. I noticed it on a very high tree (Durian tree), while riding some fourteen miles from my house. It formed a complete circle round the tree. The Durian fruit being much valued by the Malays, I was not inclined to purchase the entire tree for the sake of the Orchid, and, therefore, perhaps did not obtain it in as good condition as I otherwise could have done. I ordered the plant to be scraped off, and brought to my garden. It is 7 feet 2 inches high, and 13½ feet across. It has seven spikes of flowers, the largest 8 feet 6 inches long. The flowers are dark brown spotted with yellow. It is very seldom that a European visits this part of the State. The Orchid does not get as much admiration as it deserves, the Malays thinking my appropriation of it a rather insane proceeding, as the blooms are not good to eat." It may be a species of *Grammatophyllum*.

CYPRIPEDIUM TESSELLATUM PORPHYREUM.

"ORCHID AMATEUR" writes for information respecting the above *Cyripedium*, and says, "I have heard or read that it is one of the most distinct in colour of the whole family." We reproduce the illustration (fig. 23) as a guide to the form of the flower, and we may add with regard to the colour that our correspondent has been rightly informed, for it is very remarkable. The hybrid was obtained from a *Cyripedium concolor* crossed with *C. barbatum*, the floral form showing the characters of the former, and the colour partakes of that of the latter parent. It is, however, a peculiarly rich purplish rose tint unequalled in its way by any other form in the genus, and it is strange that the deep tints of *C. barbatum* should have been brightened and enriched to such an extent by a cross with a yellow flowered species. In Messrs. B. S. Williams & Son's Nursery, Upper Holloway, this has been grown with much success, and a capital example was shown by that firm at the Royal Horticultural Society's meeting in October, 1888. It is surprising that it has never been included amongst the many

handsome *Cyripediums* represented in the "Orchid Album."—LEWIS CASTLE.

ORCHIDS AT Highbury, near Birmingham.

THE Right Hon. Joseph Chamberlain, M.P., on his arrival from the land of the Pharaohs, found a good display of his favourite flowers, for the Orchid show house is very gay just now, and there is a good sprinkling of bloom in the other houses. *Cattleyas* are numerous amongst them *Trianae alba*; *Warszewiczii delicata*, a fine form of *Trianae alba*; *Cattleya Corningi*, a pale variety of *Trianae*, with a blue lilac tint in the labellum. *Oncidium splendidum* is very fine, so also are *Dendrobiums Ainsworthii*, *Leechianum*, and *Pierardi latifolium*, and *Odontoglossum Edwardi*. *Cœlogyne Lemoniana* is a charming Orchid, of closer habit, and a little smaller in the flowers than *C. cristata*, with a bright lemon blotch in the labellum; *Phalænopsis Stuartiana*, is distinct; *Odontoglossum Roezli album*, and a fine variety of *Roezli*, and *Acineta Barkeri* are

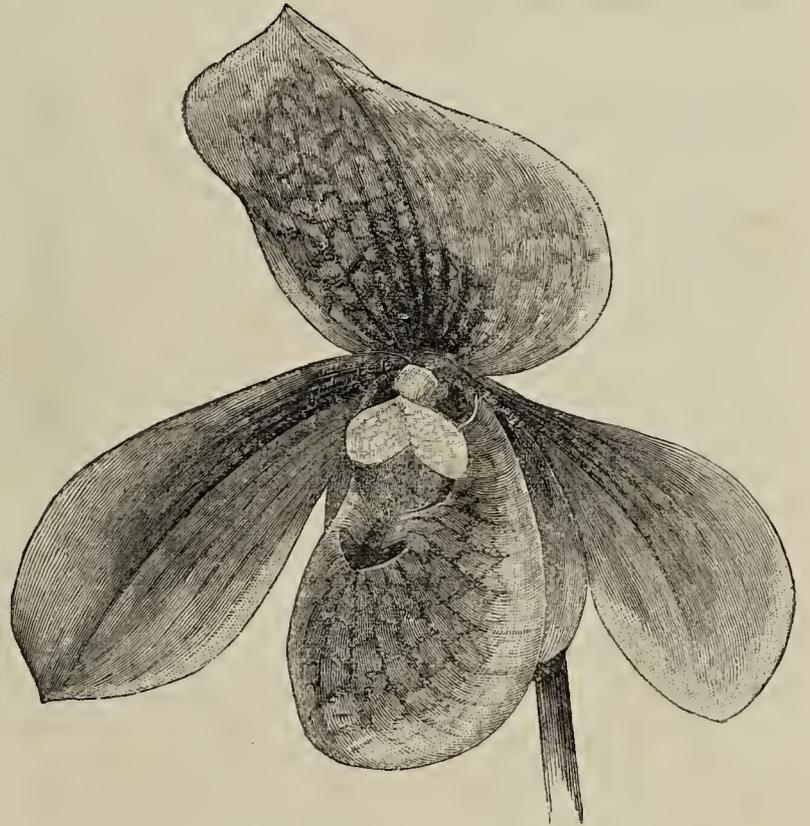


FIG. 23.—CYPRIPEDIUM TESSELLATUM PORPHYREUM.

amongst those in flower. Mr. Woodfield has the Orchids well in hand, and plenty of bloom will now be the order of the day.—D. S. H.

CÆLOGYNE CRISTATA.

LARGE pans frequently become crowded with pseudo-bulbs in the centre to such an extent that these rarely develop to a size strong enough to flower profusely. When plants are in this condition and it is not desirable to break them up the only course is to thin them. It may be necessary to remove a few old pseudo-bulbs so that small pieces can be cut out, being careful not to injure the roots of those remaining. The holes should be filled with fibry peat, and the leads carefully drawn from where they are crowded and pegged over the vacant places. At the end of one year the pan will be covered with large pseudo-bulbs. It is surprising what a stock of plants can be raised by this method in a few years. Large specimens judiciously thinned every second or third year can be kept in good condition, and will flower freely if the pseudo-bulbs are well grown and matured.

The growths will be small the first year, but they will develop to a fair size in the second, and soon make good flowering plants. All the best pieces should be placed in pans and pots by themselves. Those with no prominent leads may be pegged on the surface of pots or pans nearly filled with crocks. They should be given very little material in the first season until they are established. Healthy fresh pieces with leads should have the pots about one-third filled with drainage. The pseudo-bulbs must not be buried in the compost; their rhizomes should be pegged on the surface, and after they commence growing place a little living sphagnum moss on the surface. *Cœlogyne*s do well in fibry peat and portions of charcoal. For a long time we have used moss only on

the surface. Care is necessary not to give too much water at first. If the compost is rendered too wet, either by the syringe or watering, puny growth only will result.

ODONTOGLOSSUMS.

Where these have been kept in a temperature at night of 50° to 55°, some of those that have flowered will display signs of growth. If these were potted last year in fibry peat with a layer of living moss on the surface, they will only need top-dressing at the present time. It is best to do this work before fresh roots issue from the base of the pseudo-bulbs. The moss should be carefully removed from amongst the roots, and fibry peat supplied. A little living sphagnum may be placed in patches amongst the peat, and if encouraged to grow will soon spread over the surface. If not, after growth and root activity has commenced in earnest a few good leads will quickly establish themselves amongst the peat. When the plants are top-dressed early there is no fear of breaking tender young roots, and when they commence growing they enter the fresh compost on the surface freely.

LARGE POTS.

For *Odontoglossums* large pots are not needed. Plants with large pseudo-bulbs can be grown in 6-inch pots, unless there are three or four strong leads, when larger pots are required. These plants do not succeed so well when they have a mass of unoccupied soil about their roots. It is apt to become too wet, and the roots perish in consequence. We have tried potting the plants without disturbing their roots, but this practice is not a safe one; a quantity of decayed material accumulates about them, which quickly results unsatisfactorily. No injury follows this method when the plants have been imported and are started in small pots, they can be repotted safely; in fact, it often has to be done during the season of growth. It is surprising how long these plants can be kept in the small pots in which they have been started. They will make strong growths and large pseudo-bulbs before it is necessary to place them into larger pots. We are firmly convinced that more harm results from growing these plants in pots too large for them than from keeping them in those that are too small.

CYPRIPEDIUMS.

Plants imported in autumn are a long time before they form roots and start into growth. We have tried placing them in pots directly they arrive and suspending them roots upwards in the stove or other moist structures, and have found the latter treatment the most satisfactory. Plants subjected to this treatment for the past two months show no signs yet of rooting and growing. Although they have been freely syringed, they have remained almost the same in appearance. During the past week they have improved in freshness, and will not be long before they commence forming roots. Plants in this condition should have a little living moss bound about the roots. This will increase the amount of moisture about them, and directly they commence rooting they should be placed in pots according to their size. Peat fibre, moss, and a little charcoal, or crocks, form a good compost for them at first. The pots used should be about half filled with drainage and the plants slightly elevated above the surface.—ORCHID GROWER.

L'ORCHIDÉENNE.

The monthly meeting of the above Society took place on the 9th inst. in the central gallery at L'Horticulture Internationale, Park Leopold, Brussels. The Orchids exhibited were very numerous, and exceptionally good for this time of the year. There was a large attendance of amateurs, and the fine weather in the afternoon brought hundreds of visitors to admire the display. Of the Committee members the following were present:—Messrs. J. Hye-Leysen, Wallaert, Massange de Louvrex, Lübbes, Lallemand, Miteau, Rodigas, L. Linden, Secretary du Trien de Terdonk, Treasurer.

M. G. Warocqué staged a large group, foremost among them being a well-flowered specimen of *Lælia anceps* bearing over 100 blooms; a new *Cypripedium* named *Warocqueanum*, which has flowered with a number of imported plants bought as *C. præstans*, the colour of the petals being especially fine; a splendidly flowered plant of the beautiful *Odontoglossum Pescatorei Lindeni*, of which he is the only possessor; and *Odontoglossum crispum sulphureum*, a fine form, very rich in colour. M. J. Hye-Leysen exhibited a group of choice Orchids, several of which were certificated, including a superb form of *Lælia anceps alba*, named *Lindeni*, *Odontoglossum Wilckeanum albens*, and a beautiful variety of *Cattleya Trianae*. M. Wallaert sent *Dendrochilum glumaceum validum*, shown for the first time, very distinct and beautiful; also a fine

variety of *Cattleya Trianae*, and *Cypripedium villosum albo-marginatum*. M. le Comte de Bonsies contributed a well-flowered specimen of *Cattleya Trianae*, a beautiful dark variety. M. Van Imschoot sent a well-flowered plant of *Cattleya speciosissima*, and a flower of a *Lycaste*, variety unknown, apparently of the *L. plana* type. M. Vervæet staged a number of exquisitely fine varieties of *Cattleya Trianae*; also *Cypripedium Barteti*, and *Godseffianum*, the latter being particularly good. M. Miteau sent a well-flowered plant of *Cattleya Trianae Baillonville*, several plants of *Cypripedium Boxalli* varieties, and *Cypripedium barbatum Veitchi*, a beautiful hybrid; and several fine varieties of *Odontoglossum crispum*. M. Linden contributed a large and interesting group; the most noteworthy were *Cattleya Trianae Hyeana*, an excellent variety, with large well-shaped blooms of a rich colour; also a well-flowered specimen of the paler variety, *Cattleya Trianae pallida*; *Odontoglossum Rossi maximum*, a similar variety to the one shown by Madame Gibez at the last meeting, the flowers being of exceptional size and superb colour; a large specimen of *Maxillaria luteo alba*; *Cattleya Percivalliana*, a superb variety of *Odontoglossum crispum*, and others.

The following awards were made by the Committee:—Diploma of honour of the first class to M. G. Warocqué for *Cypripedium Warocqueanum*, to M. Wallaert for *Dendrochilum glumaceum validum*, to M. J. Hye-Leysen for *Lælia anceps Lindeni*. Certificates of merit of the first class to M. G. Warocqué for *Odontoglossum Pescatorei Lindeni*, to M. Linden for *Odontoglossum Rossi maximum*, to M. J. H. Leysen for *Odontoglossum Wilckeanum albens*, to M. Linden for *Dendrobium Wardianum giganteum*, to M. Linden for *Cattleya Trianae Hyeana*, to M. Vervæet for *Cypripedium Godseffianum*, to M. Wallaert for *Cypripedium villosum albo-marginatum*, to M. J. Hye-Leysen for *Odontoglossum crispum guttatum*, to M. Miteau for *Cattleya Trianae Baillonville*, to M. Wallaert for *Cattleya Trianae*, to M. J. Hye-Leysen for *Cattleya Trianae*, to M. Vervæet for *Cattleya Trianae*. Certificates of merit of the second class to M. G. Warocqué for *Odontoglossum crispum sulphureum*, to M. J. Hye-Leysen for *Odontoglossum Mulus*, to M. Linden for *Odontoglossum crispum*, to M. Vervæet for *Cypripedium Barteti*, to M. Miteau for *Cypripedium barbata Veitchi*, to M. J. Hye-Leysen for *Cypripedium lævigatum platytænium*, to M. Linden for *Cattleya Trianae pallida*, to M. Vervæet for *Cattleya Trianae*, and to M. Warocqué for *Cœlogyne Lemoniana*. A first class cultural certificate was awarded to M. G. Warocqué for *Lælia anceps*. Second-class cultural certificates were awarded to M. Miteau for *Cypripedium Boxalli*, to M. Linden for *Maxillaria luteo alba*.—BRUSSELS CORRESPONDENT.

INSECTS OF THE FLOWER GARDEN.

THE beetle tribes offer a great contrast to the butterflies and moths, some species of which have been described in previous articles. In their condition as beetles many of them are of dull colours, and disinclined to exhibit themselves to view, though some few species make themselves conspicuous in broad daylight. But while they are in the larval state most of them are hidden from observation, a large number being under the earth or secreted in plants. At this time of the year, when our flower beds and borders are turned over in preparation for another season, beetles are familiar objects to the gardener, and usually recognised as such. Should their larvæ be unearthed, however, a doubt often arises as to what they will "turn to," and they receive the vague name of "grubs." Said I to a friend who was making devastation amongst beetles by the free use of a hoe. "Take care what you are about, it is very unlucky to kill a sunshiner." He acknowledged that he was ignorant of what a "sunshiner" was, and I explained that this name was formerly given more particularly to the small brilliant beetles of the genus *Amaræ*, which frequently come in the gardener's way, therefore are likely to be killed. The supposition was that if this happened a storm of wind or rain might be looked for. Many other beetles besides the *Amaræ* in that group might be called sunshiners also, as they have often bright colours. There is seldom need to destroy them, since their proceedings are not such as to make them injurious, the bulk of them being of carnivorous habit.

Certainly there have been some instances recorded lately in which predatory or carnivorous beetles seem to have gone "off their heads," and leaving their wonted food have attacked such a fruit as the Strawberry, and also the succulent roots or underground stems of plants. One of these much complained of was popularly called "black Jack," a dark beetle of the genus *Harpalus*, probably. Other species have been proved to be similarly transgressors, and as their jaws are powerful for their size they can do some mischief. I am inclined to think that the reason of this

eccentricity is a failure of their natural food, which drives them to a substitute. If kept in boxes they will eat greedily cooked meat, and for want of other food will attack and devour each other. The ground beetles, as we entitle these carnivorous species taken as a group, kill many small caterpillars, also various insects in the pupa state and grubs of some of their relatives that are root-eaters. A pretty and conspicuous species common in France is there known by the name of *Le Jardinier* (in science it is *Carabus auratus*), and it is the special foe of such species as the cockchafer and the rose beetle. Its near ally the violet ground beetle (*C. violaceus*) is often brought up by the operation of digging beds, and it should always be spared, for though it buries during the day, after dark it comes forth and hunts other insects. Several of the ground beetles select for their food small snails and slugs, destroying in their career a good number of these, for they appear in autumn, and after hibernation come forth early in the year and feed again. It is doubtful whether in the grub or larval state they all are carnivorous; some of them are known to resort to heaps of dead leaves, decaying stems or fungi, and so they probably help to remove what might be offensive, or convert it into nutritive matter for the soil. In size the ground beetles vary from the *Carabus*, a full inch long, to a small *Amara*, hardly a quarter. Their colours are generally bright, though a few are dull green or black. Many species have the wing-cases covered with small punctures or rows of narrow streaks.

From the ground or carnivorous beetles we pass to the Necrophage, or "carrion-eaters," so-called from the habits of a majority of the species. The burying beetles, which occupy themselves in the work of interring dead birds, small quadrupeds, frogs, &c., are a familiar instance of the group, but these seldom occur in the precincts of the flower garden. A funny little beetle, not bigger than a good-sized pin's head, which rejoices in the name of *Eumircrus tarsatus*, occurs frequently amongst plants that have been kept through the winter in hotbeds, the larvæ feeding on vegetable or animal matter, but it does no harm. In colour the beetle is chestnut and black, downy, and with prominent eyes. Next we reach other tiny beetles, too well known to every gardener, and which also inflict annoyance upon persons who are inhaling the perfume of a beautiful nosegay, and who may chance to find that in sniffing at the flowers they have unawares drawn an insect into the nose. The beetles of the family *Nititulidæ* have flattened bodies, depressed heads, and short antennæ. Their shining aspect has given rise to the Latin name, nearly all being more or less glossy. They lurk amongst flowers, biting the petals, but their exceedingly small size, as compared with that of many beetles, renders the mischief they do less observable. Still, when a dozen or two are found hiding in one Rose blossom, their united operations cannot improve the flower. A very plentiful species is called *Meligethes æneus*. It is metallic or brassy, and creeps slowly out of the flower when it is shaken. Some kinds drop out, feigning death. While in the larval state these flower-lovers feed upon decaying substances, especially bark and wood.

A prominent member of the family known as the rove beetles, or cocktails, often crosses the garden path, being an object of dislike naturally, sometimes also of alarm. The rove beetles generally are, as their name implies, of wandering habit, and run briskly; they can fly, too, with speed, for they are provided with large wings. This particular species always indicates the appropriateness of the second name by the menacing way in which it raises the hinder part of body, at the same time opening its jaws. Should a stick be held towards one of these beetles it is not in the least frightened, but attempts to strike at this or any other object which may be directed towards it. In addition to its jaws the goerius has a means of defence at the tail, from which it can throw a fluid, the odour of which is as horrible as that of the skunk. In colour it is dull black, and from its repulsive aspect in some counties folks call it the "devil's coach-horse." Yet it is a useful insect, killing other insects of various sizes, and as a larva it is predatory as well, feeding not uncommonly upon small worms and slugs it is stated. Some very small relatives of this species, with the like propensity for ejecting a pungent liquid, often fly about our gardens on summer evenings and make wild dashes at the human eye. Should one enter, as they will, the pain is often intense for a time, due probably to this liquid.

We could hardly find two beetles offering a greater contrast in appearance than that just described, and the beautiful rose beetle or chafer (*Cetonia aurata*). Above the beetle is green shot with gold and marked with some whitish dots. Underneath the surface is bright copper. It has tolerably strong wings, and takes excursions in the sunshine, but it certainly commits some damage, being specially fond, as the name implies, of haunting the flowers of the Rose. Gardeners also tell me that they believe the rose beetle has a partiality for the blossom of the Strawberry, and biting them

when expanding reduces the yield of fruit in some places. The fat clumsy grub or larva of this beetle feeds on rotten wood, but from the profusion in which I once met with the species in a market garden distant from trees, I think it possible that the food may occasionally be the roots of plants.—ENTOMOLOGIST.

JAM FACTORIES.

At the present time, when fruit tree planting is being pushed vigorously forward, something certainly should be done as a means of turning the industry to a profitable account. Many people with small means have been led to take to planting fruit trees as a means of increasing their income, and unless there are suitable jam factories for disposing of the fruit, I fear there will not be much profit for numbers of people who have been led to embark in the enterprise. As Mr. Wright truly says, growers must not rely upon Apples exclusively if they wish to reap reward, for if they do they certainly will not secure it. The small growers especially will find a difficulty in disposing of their fruit, but by establishing jam factories in suitable districts, so that the fruit could be delivered fresh within an easy radius, I believe that fruit growing may be made a source of profit for small growers as well as for others. As I have previously stated, this is no new idea, for we have what Lord Sudeley has done at Toddington before us, and he, I believe, was the pioneer. Others are following, such as Lord Coventry at Pershore, another at Evesham, and in our own immediate neighbourhood a large farmer has carried one on successfully for the past four or five years. He grows quantities of fruit, and also buys what others have to dispose of. And this is what is required in every district where fruit growing is likely to be taken up. I think if something of this kind could be carried out we should be opening up a profitable industry. As Mr. Wright says, we have the cheapest sugar in the world, and also the world for a market. The fruit could be preserved in a whole and fresh state, and people would know what they are buying. Of course it would have to be turned out at a cheap rate. The price of the fresh fruit would have to be governed by the market.

Strawberries, Gooseberries, Raspberries, and Currants would be the fruits to grow for this purpose, with Apples and Plums as top fruit if desired. Those growers who may be fortunate enough to reside within an easy distance of a factory would not be burdened with heavy railway rates. Care would have to be taken with the gathering of the fruit so that it could be delivered in a whole and fresh condition, Strawberries particularly so. If the fruit were forthcoming no doubt the factories would soon be established, as without the certainty of a full supply this would be useless. The same factories could also be used as agencies for buying up Apples. In many country districts cottagers find a difficulty in disposing of their Apples, even when good examples. But this should not be so, as they lose heart. The larger growers have the market more at their command, but even with these there may be a difficulty in disposing of their fruit in a raw state in the market a few years hence, so it behoves them to be on the look out. Small fruits so quickly perish after being ripe and gathered, that they are bound to be disposed of at some price, however small, or they would be useless. It is no new thing now, at least a year or two since, to see thousands of Damson trees full of fruit, and these allowed to drop and decay, as the market price would not pay even for the gathering.—A. YOUNG, *Abberley Hall Gardens, Stourport*.

NEW CLASS AT SUMMER SHOWS.

FRAMERS of prize schedules are often puzzled to discover something novel without in many instances adding seriously to the amount of prize money to be found. There is, and always will be, a certain amount of sameness about the best of shows, but much may be done by judiciously varying the arrangement of the various exhibits, and also by adding new classes occasionally, even if this necessitates cancelling some of the older ones. The cut flower classes are always among the most attractive of any, and it is among these where there is more scope for changes and improvements. My proposed addition to these is a very moderate one—viz., two classes at least for cut Begonias—one for double and the other single flowering varieties. If room or money is needed for these, then wipe out or reduce the number of those devoted to Verbenas, Marigolds, and even Asters, none of which are either so beautiful or popular as the Tuberous-rooted Begonia. Prizes are certainly provided for the latter, but seeing how very popular this class has become, and the ease with which everybody with a greenhouse can grow them, it ought to be the aim of framers of schedules to still further foster this love for a very useful flower.

For several seasons past Begonias in a cut state have been exhibited at all the principal West of England and other shows by Mr. B. R. Davis, nurserymen, Yeovil, and I have frequently noted how attractive these proved to numerous visitors. They are not arranged on clumsy

stands or trays with collars and other hideous accompaniments, but were neatly set out in shallow tin or zinc boxes holding water, and with a wire network strained across for supporting the flowers with their stems in the water. A groundwork of Maidenhair Fern fronds with a fringe of tiny Ferns in small pots gave the finish to a very pretty exhibit. There are really such a beautiful selection of these Begonias, both double and single, that it is comparatively an easy matter to bring a charming display together, and I should like to see prizes offered for an artistic exhibit of them as well as for a fixed number of varieties. Mr. Davis has also frequently exhibited hand and buttonhole bouquets composed entirely of Begonias and Fern, and very bright and attractive they look. Some of the varieties may easily be mistaken for Gardenias, Carnations, Picotees, and Eucharises, though without the scent unfortunately, and the delicate and rich shades of innumerable other varieties gives plenty of scope to an exhibitor. In conclusion, I venture to think that if classes were provided for cut Begonias these would soon be very popular with both exhibitors and visitors.—W. IGGULDEN.



☐ **EVENTS OF THE WEEK.**—The principal Society meetings during the week are the following:—The Royal Society Feb. 20th at 4.30 P.M., and the Linnæan Society the same day at 8 P.M.; the Royal Botanic Society on Feb. 22nd at 3.45 P.M., the Royal Geographical Society on Feb. 24th at 8.30 P.M., and the Society of Arts at 8 P.M. on Feb. 26th.

— A FURTHER official communication respecting the GREAT INTERNATIONAL HORTICULTURAL EXHIBITION AT BERLIN has been issued, from which we gather that additional special prizes have been offered, including one from Her Majesty the Empress of Germany, and that several prominent German horticulturists will participate in furnishing the Exhibition. The great French firm Vilmorin Andrieux and Co. will be represented, and among British horticulturists the names of Messrs. F. Sander & Co., St. Albans, and Blair, gardener to the Duke of Sutherland, are announced as exhibitors. The examination of foreign consignments, which under the existing law as to phyloxera would have to undergo inspection en route, will be conducted within the Exhibition buildings. During the time that the Exhibition is being held there will be discussions by the German Rose Growers' Union, the German Garden Trades' Union, and others. Particulars can be obtained from the office of the Society for the Advancement of Horticulture, Invalidenstrasse, 42, Berlin.

— **HORTICULTURAL CLUB.**—The annual dinner took place on Tuesday, Feb. 11th, at the Club Rooms (Hotel Windsor), when there was a very full attendance. The chair was taken by the Chairman of the Club, Mr. John Lee, and there were present—Sir John T. D. Llewelyn, Bart., Dr. Hogg, the Rev. W. Wilks, the Rev. F. H. Gall, Messrs. T. B. Hayward, P. Crowley, Harry J. Veitch, J. H. Veitch, George Paul, George Deal, T. W. Girdlestone, H. J. Pearson, W. Bull, J. Stewart Dismoor, George Bunyard, A. Turner, Lynton White, W. Baker, J. C. Cousens, C. T. Druery, Arnold Moss, the Secretary, &c. In the course of the evening a selection of vocal and instrumental music of a very high order of excellence was given, under the kind arrangement of Mr. Geo. Bunyard, and altogether the banquet was a very successful one, and many good wishes were expressed for the prosperity of the Club.

— **THE WEATHER IN THE METROPOLITAN DISTRICT** has been variable. The concluding days of last week were wet and foggy, but Sunday, Monday, and Tuesday have been bright, the wind varying from S.W. to N.E., with morning frosts on several occasions. The buds of trees and outdoor plants are advancing fast under the influence of the sunny days.

— **THE WEATHER IN THE NORTH.**—February 10th to 17th. The first half of the week was bright but cold, with east wind, and frost from 2° to 8°. About a quarter of an inch of snow fell in the afternoon and evening of the 13th, and the hills around are still white, a cold thaw prevailing lower down.—B. D.

— **GISHURSTINE.**—We are requested to state that this preparation, which is advertised, is largely used by sportsmen on their shooting and fishing boots, is now being applied to walking boots and shoes. It has been found that applied even to the soles of ladies' boots it prevents damp reaching the feet.

— **GARDENING APPOINTMENT.**—Mr. William Hockey, foreman at Cardiff Castle Gardens, has succeeded Mr. Armytage as gardener to Col. Page, Dulwich House, Llandaff.

— **TRADE ANNOUNCEMENT.**—Mr. Sidney Ford, lately of the Leonardslee Gardens, Horsham, has commenced business as a consulting landscape gardener at The Laurels, Cowfold, Horsham.

— **PROPOSED HALL FOR HORTICULTURE.**—Through the accidental misplacement of two small words in our reference to this project last week, the sentence read that Miss Douglas and others promised £25. It should have been, Messrs. Douglas and the other gentlemen mentioned, and Miss Sullivan.

— **WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.**—This Society met twice during January. The members are steadily on the increase. On the 28th January Mr. H. Brown read a paper on *Odontoglossums*, which was much appreciated. On the 11th of February a paper on "The Cultivation of Soils for Garden Crops," dealt with in an able manner by Mr. W. M. Alexander. A good discussion followed. The paper could not fail to be instructive.

— **HYBRID AZALEAS.**—Many will remember that when Mr. Carmichael was at Sandringham he succeeded in raising and flowering a number of hybrids between *Azalea amœna* and, I think, *A. phœnicea*. I remember very well seeing them there in flower, and on visiting High-bury, near Birmingham, a few days since, I saw several of the Carmichael varieties in flower. One of them, especially Mrs. Gerard Leigh (I think this is one of the Sandringham varieties) is very beautiful, of a bright ruby red colour, larger in flower than *amœna*, but of compact dwarf habit and a very profuse flowerer. Truly it is a gem for early work.—D. S. H.

— **THE PARSLEY-LEAVED BRAMBLE.**—In response to your editorial footnote appended to my remarks upon the origin of the above, page 118, I communicated with Messrs. Fisher, Son & Sibray upon the subject, and the enclosed is their reply, just received, in which they give what information they can upon the subject.—W. K. W. "You are quite correct as to the origin of this variety, but we cannot give the exact date of its discovery, but in looking through our former catalogue we find it quoted for the first time in the list for 1859-60, and we are of opinion that this is about the date of its introduction.—FISHER, SON & SIBRAY."

— AN influential committee has been formed, says *Nature*, for the purpose of securing the scientific and other friends of the LATE DR. MCNAB, PROFESSOR OF BOTANY IN THE ROYAL COLLEGE OF SCIENCE, DUBLIN, an opportunity of expressing their appreciation of his work and their respect for his memory. "Through no fault of his own, Prof. McNab was unable to make adequate provision for his wife and five children; and it is proposed that the memorial shall consist of a fund, sufficiently large to be of real service to his family. Many subscriptions have already been received or promised. Mr. Greenwood Pim, Easton Lodge, Monkstown, Co. Dublin, acts as Hon. Secretary; Prof. W. N. Hartley, F.R.S., Royal College of Science, Dublin, as Hon. Treasurer. As Professor Hartley has been obliged to leave Dublin for some time, all communications should be addressed and cheques made payable to the Hon. Secretary."

— **GARDENERS' IMPROVEMENT SOCIETIES.**—These, which may be termed local schools of gardening, appear highly popular. The Ealing Society had a crowded meeting last week, at which G. Deal, Esq., presided, a paper was read, discussion conducted, and plants exhibited. A method of encouraging cultivation adopted by the Society in according marks of merit on an equitable basis will, perhaps, be further referred to. A very large meeting of a similar nature was held at Reading on Monday night, this week. New members were enrolled, and good financial support offered by Mr. Sutton, Mr. Palmer, and others towards the library and the Wildsmith Orphan fund. A Gardeners' and Amateurs' Mutual Improvement Society was inaugurated at Croydon on Tuesday evening, at which Mr. J. Wright delivered by request the opening lecture on "Mutual Improvement Societies and their Objects." Rev. W. Wilks, M.A., presided, and much earnestness was manifested in the proceedings throughout.

— AFTER reading Mr. Arnott's note and that by "W. T., *Blantyre*," on the WEATHER AND SNOWDROPS, I thought perhaps it may interest them and Mr. Skerry to know that here we had some hundreds of Snowdrops in flower on 4th January, and our young lady sent some on that day to England, and was told by return they had none yet. Our

earliest grew in an open spot on the lawn, where, till November, 1888, they grew under a large Thorn tree, when it was destroyed by a gale of wind. There are about one hundred clumps in this spot, which is raised a little above the level of the lawn, and this would have a good roasting in May and June last year, and may account for their early flowering, assisted by this mild winter. As Blantyre and Rutherglen are so near, I am surprised at "W. T." only seeing one on the 8th. We are not sheltered, being on a wooded brae. Snowdrops in January are quite common, but not so early in the month.—W. E., *Rutherglen*.

— THE LATE MR. G. W. YOUNG.—I was much surprised and sorry to read in the last issue of the Journal of the death of Mr. Young. I have no doubt many more besides myself have benefited by his sound and practical teaching. I always found him ready to give advice, and I can safely say on several occasions I have received useful hints from him, which I had no fear about carrying into practice, especially in plant culture. I need scarcely say that my sympathy rests with his widow and family in their bereavement.—J. PETHERS.

— HOMALOMENA (*CARMERIA*) WALLISI is not grown so generally as it should be. It is a handsome plant, belonging to the Aroidæ, of low growing habit, not more than 9 inches high, with drooping leaves, 6 to 8 inches long by 5 inches wide, ovate oblong, and pale velvety green, copiously blotched with golden yellow. The under surface is dull red. The flowers are rather attractive, the spathe being about 3 inches long, constricted in the middle and reddish brown, while the spadix is red. To ensure good leaves, however, the flowers should be picked as soon as seen. We grow this plant in the warmest house, potted in a mixture of peat and moss, and keep it very wet. Under this treatment it gives great satisfaction. It should be propagated by division.—(*The American Garden*.)

— THE SCHEDULE OF THE ROYAL AQUARIUM EXHIBITIONS FOR 1890 is just to hand, and gives particulars of the following:—Spring Shows on March 12th and 13th and April 29th and 30th, when prizes are offered in twenty-one and thirty-one classes respectively, chiefly for bulbs, forced plants, Auriculas, Primroses, and Narcissus. The Summer Show takes place on May 21st and 22nd, when there will be liberal provision in twenty-six classes for flowering and foliage plants and cut flowers. The Rose Show is fixed for June 27th and June 28th, and the National Pink Society offers prizes in ten classes for the same date. A Carnation Show will be held on July 29th and 30th. A fruit Show is announced for October 15th, 16th, and 17th, when the National Chrysanthemum Society offers prizes for Chrysanthemums. The early autumn Show of the same Society takes place on September 10th and 11th, and the Centenary Festival on November 13th and 14th. Meetings of the British Fruit Growers' Association are announced for June 27th and October 15th.

— CINERARIAS FOR HOUSE DECORATION.—When well grown, the varied beauty and bright colours of the Cineraria will always insure for it a high position in general favour. In the greenhouse it is indispensable, while as a plant for the house it is also valuable. As I keep from thirty to forty plants indoors, I have had every opportunity of proving its merits, and I am much in favour of the blue varieties. Other colours I tried, but not with such good results. The blue varieties I am in favour of are the tipped ones. Some have stood a month indoors, but before being taken in, the soil is covered with moss, which is kept wet, and I find it helps to maintain their freshness. I find the colours most brilliant of the plants which were supplied with farmyard liquid manure. The doubles I intend to try next season, but I have not so much confidence in them as in the singles. Perhaps some other readers will give their experience.—R. V. S.

— GAS-HEATING HOUSES.—In reply to "C. S.," respecting an automatic arrangement for regulating the supply of gas used in heating small greenhouses, I can recommend a very ingenious, yet simple, and undoubtedly effective contrivance, that is extensively used in this neighbourhood. The principle of its action consists in the expansion or contraction of spirit enclosed in a thermostat by a column of mercury, the gas being conducted by an inner tube subject to the passage being contracted or enlarged by the heat of the house, causing the column of mercury to rise or fall. This is merely an outline of its action, but several important improvements have been recently effected by one of our most practical heating engineers in the city, and the instrument, which can now be seen in use in several amateur conservatories in Clifton, can be adjusted in such a manner that any desired temperature can be assured. I shall be pleased to forward address of maker if "C. S." will favour me with his address through the Editor.—M. COOMBE.

— PRESTON AND FULWOOD HORTICULTURAL SOCIETY.—An interesting meeting of this Society was held on Saturday last, when Mr. Alfred Waters, of Farington House Gardens, was presented with a handsome clock. Mr. Waters is leaving to take charge at Hopwood Hall Gardens, near Manchester, and the members decided to take this opportunity of recognising his many good qualities and his usefulness to the Society. Mr. C. Parker made the presentation, and in doing so he alluded to Mr. Waters' skill as a gardener and as a successful exhibitor, and also to his willingness at all times to give to others the benefit of his experience on any gardening matter, and that, though the members were all sorry to lose him as a friend and adviser, they wished him every success. Mr. Roberts and others also bore testimony to the respect in which he was held. Mr. Waters feelingly replied, thanking the subscribers for their kindness, &c.

— The *Botanical Gazette* published at Crawfordsville, Indiana, gives some particulars of one of the most magnificent bequests ever made for scientific purposes, that of the late Mr. H. Shaw for the endowment of the BOTANIC GARDEN AND SCHOOL OF BOTANY AT ST. LOUIS, MISSOURI, amounting to not less than between three and five million dollars. The trustees have determined to apply the income to the maintenance and increase in the scientific usefulness of the Botanic Garden; to provide fire-proof quarters for the invaluable herbarium of the late Dr. George Engelmann, and to supply means for its enlargement; to secure a botanical museum; and to gradually acquire and utilise facilities for research in vegetable physiology and histology, the diseases and injuries of plants, and other branches of botany and horticulture. To aid in the carrying out of this last purpose travelling botanical scholarships have been established. The present very able director of the Botanic Garden is Dr. William Trelease.—(*Nature*.)

— A "MARYLAND FARMER" writes in *The Canadian Horticulturist*—"The extensive use now made of PARIS GREEN and other arsenical poisons should be a warning to us. Some of our ablest physicians insist that there are forms of disease traceable directly to the presence of arsenic in the Potato. This I doubt, and yet it seems certain that the use of arsenic on vegetation more or less checking the perfectly healthy development of the leaves, produces a chemical change in the tubers detrimental to health. It is getting almost impossible to purchase Potatoes entirely free from a tinge of bitterness, while a very large part of the Potatoes that find their way to market are quite unfit for use. Many farmers use five or ten times as much Paris green on a Potato field as is necessary for the purpose of destroying the Colorado beetle. The practice of sprinkling Paris green into Cabbage heads is criminal and inexcusable. I have recently seen the account of five persons having been killed by the use of such Cabbage. Probably there is no direct danger from the recently derived method of spraying Apple and Plum trees to the fruit eater, but there is serious danger to those who handle the poisons. Paris green should be used and stored with every precaution. We are getting quite too familiar with it, and are losing our fear of it."

— THE NATIVE GUANO COMPANY send us a list of testimonials, showing the results of the application of the manure to farm and garden crops in the different counties of England, also in Wales and Scotland, and it has evidently given great satisfaction to the several cultivators.

— A VALUABLE paper on "THE UTILITY OF FORESTS AND THE STUDY OF FORESTRY" was recently read before the Indian section of the Society of Arts, by Dr. W. Schlich, Professor of Forestry at the Royal College of Engineering, Cooper's Hill. In the course of his remarks Dr. Schlich gave an account of the instruction in forestry at Cooper's Hill, and mentioned that the authorities were thinking of appointing a second professor of the subject, and thus doubling the amount of instruction now given. After the reading of the paper Major-General Michael, C.S.I., who presided, made some interesting observations. No one, he said, who had visited the great forest regions of Germany, Austria, and France could fail to be impressed with the visible effects of good management, and to wish they were more generally apparent in England and Scotland. There were signs that the education and practical training of foresters were being more thought of at the present time in England, and he ventured to predict that Dr. Schlich would shortly have a good many students under him who were destined for home employment and not for India only. Personally he knew more about the value of forestry and the life of a forester in India, having spent seven or eight of the happiest and perhaps the most useful years of his youth as a forest officer. That was

more than forty years ago, before the time arrived for experts like Dr. Schlich and his distinguished predecessor Sir Dietrich Brandis to come to the country. He could, therefore, tell any of Dr. Schlich's students that might be present that the life of a forester in India was not only a career of importance, but that it was one full of interest and of real enjoyment.—(*Nature*).

PERPETUAL FLOWERING CARNATIONS.

JUDGING by the rarity of well-grown examples of perpetual-flowering Carnations it is easy to believe that the culture is not generally well understood, while border varieties are much more largely grown. The time is now fast approaching when the propagation should receive attention from those who wish to have first-class plants for next autumn's flowering; a few words of advice therefore are here given. It is generally well known that to build up healthy vigorous specimens of any plant an early start must be made with robust healthy cuttings, and the truth of this is as applicable to the Carnation as to any plant I know; those therefore who require fine plants in 8-inch pots should see to it at once. By an early start I mean that cuttings should be inserted from the middle to the end of February, others following in quick succession. To obtain cuttings of the right stamp it will be necessary to turn attention to the stock plants without delay, as should these be in a temperature of 45° to 50° it will be beneficial to give a rise to 55°, with an additional rise by sun heat. The object of this increased temperature is to produce what may be termed "growing cuttings"—that is, cuttings which have been comparatively quiet for some weeks past, and which will quickly answer to a rise in the temperature. These active or "growing cuttings" are much surer in the rooting process when produced as above named than would be the case were they detached and inserted in their semi-dormant state, while if produced in too high a temperature they are more liable to damp while still in the cutting frame. To prevent damping in the early Carnation cuttings daily attention is essential, with judicious applications of water at all times, admitting air according to circumstances, and whether bright or dull, but on no account close the frame directly after watering. In taking the cuttings I always prefer those I have attempted to describe—viz., "growing cuttings;" these may be 5 or 6 inches in length, and preference always given to those which can be had with a heel attached, as these are, so far as my experience goes, less liable to damp in the early stages.

A suitable compost for the cuttings will be found in equal parts of good loam and well decayed leaf soil, with a liberal addition of sharp sand. The pots should be drained to one-third their depth and the drainage cocoanut fibre refuse; afterwards fill up with the soil to within three-quarters of an inch of the top of the pots, press somewhat firmly, and add half an inch of clean washed silver sand on the surface. I prefer the latter quite dry, so that it may, when the cuttings are inserted, run down beside them.

Many prefer thoroughly watering the soil prior to inserting the cuttings, by which means the sand is confined to the surface, and in my opinion debarred from performing the functions intended, especially as Carnation cuttings are inserted 1½ inch deep. Another important item is the propagating frame and the amount of bottom heat necessary. In respect to the former any kind of frame that can be kept close will suit, while a uniform bottom heat of 65° will suffice for their requirements. Plunge the pots in cocoa-fibre refuse, and then give a thorough watering, leave them uncovered till the cuttings have become dry, and then place the lights on and keep them closed. Cuttings thus treated should not in the temperature cited require any more water for a week at least at this season of the year; the cuttings, however, may be examined daily in the morning, and if the foliage is wet remove the lights for an hour. When another watering is necessary it is a good plan to give it in the evening and leave the cuttings uncovered during the night, though later in the season such a step would not be altogether prudent, as flagging may ensue.

Overcrowding the cuttings both in the pots and when plunging them must always be avoided, for nothing is more conducive to damping. Where but limited quantities are required it is a good plan to insert cuttings singly in small thimble pots, from which they may be shifted into larger sizes. In a month or so the majority will be rooted, and not a day should be lost in placing them singly into 3-inch pots, using good loam and leaf soil in equal parts, to which add of well decayed manure about one-sixth, and a like quantity of sharp sand or grit, always potting firmly, and give a thorough watering when the operation is completed. By the time the young plants have taken to the soil they will need stopping, that is pinching with finger and thumb the top of the plant, but not removing more than to the first joint; this will cause the plant to break from below, and when the breaks are an inch or so long the plants may be shifted in large 48's or 5-inch pots, using soil of the same kind and in similar proportions cut somewhat rougher than before. From the time the young plants are first potted a temperature of from 50° to 55° will suit them, and during these early stages keep green fly and the like at bay. In these latter sized pots they will be safe till the first or second week in June, when they should be ready for 8-inch pots and for standing outside on a bed of coal ashes, having been previously staked. Attention to small details in the earlier stages is the forerunner of success, this, coupled with day to day watching and careful watering, till the roots have taken to the final shift will invariably result in healthy plants and plenty of early blooms. To

often these plants are propagated much too late in the season, with the result that they are making growth when the buds should be forming, and Carnations that have not set their buds, or are in process of setting, by the end of September will be of little use for producing many flowers during the ensuing winter, and to late propagation may be traced much of the disappointment arising out of these plants failing to flower during the winter months.—J. H. E.

CALIFORNIAN FRUIT.

I HAVE read with interest the articles that have appeared recently in your valuable journal on emigration of gardeners. The enclosure, written on the spot, may be of interest to your numerous readers. It is taken from the *San Francisco Examiner* of December 29th, 1889, and certainly is most encouraging to those seeking knowledge on emigration to those parts, and I trust it may catch the eye of him who sailed January 4th in the "Wyoming" for America.—ALFRED OUTRAM, *Victoria and Paradise Nurseries, Upper Holloway, London, N.*

IT is a matter of great astonishment to all strangers arriving in California that there exists here in the vicinity of a flourishing city an utter destitution of all garden culture, and especially of those culinary vegetables so necessary to the comfort and health of its inhabitants. At this time there is not in the vicinity of the city one acre of cultivated ground devoted to this object, while on the other hand the few vegetables brought to our markets command such exorbitant prices that a much larger portion of gold might be obtained from the earth by the culture of esculent vegetables than the average obtained by digging for gold at the mines; in fact, it may be deemed an absolute certainty that some scores of the persons now idle or engaged in branches of business that have become overdone and stagnant might realise ample fortunes by the healthy occupation of horticulture, a business which affords immediate return to those who engage in it. We might also refer to fruits and to the total deficiency of orchards in our vicinity from which this city might be amply supplied in lieu of the present dependency for the paltry quantities we receive from the distant missions. A few bushels of indifferent Pears and Apples, bruised by the transportation from distant towns, are all that our markets have been favoured with, for not a tree of even these commonest fruits is to be found adjacent to our city. As to Peaches, Plums, Cherries, Grapes, and other fine fruits, we should absolutely forget that any such existed were it not that some of these are to be met with in a dry state. All these varieties of fruits could be successfully cultivated here, and would serve greatly to increase the comforts of a California home. The smaller fruits—such as the Strawberry, Raspberry, Blackberry, and Currant—are found growing naturally in different sections of the country, thus affording proof of the appropriateness of the climate to the growth of the finer varieties so generally cultivated in the Atlantic States and Europe. We have hitherto been pressing onward in the erection of stores and dwellings for all branches of mercantile business, in order that there might be ample room for the multitude arriving and for the storage of all merchandise. These points seem now to have been attained, or at least sufficiently so for the present, and we may now consequently spare the time for some attention to the gratifications and comforts of life.—(*The San Francisco Examiner*.)

MR. LEONARD COATES, Napa Valley Nurseries, writes:—"During 1888 were exported from California 65,000 tons of fruits, divided as follows:—27,000 tons green fruits, 20,000 tons canned fruits, 10,000 tons dried fruits, 8000 tons raisins, representing an equivalent to 137,000 tons of green fruits. This does not include the very large items of Oranges and Lemons, consisting of thousands of tons, or of Almonds, Walnuts, &c.; nor does it include the enormous consumption in California. Add to this 20,000,000 gallons of wine, the total of 1888 vintage, where Australia's output is, I believe, about 3,000,000 gallons, and it is a fairly good showing for a desert."

PRESERVING VEGETABLES.

FOR some years Messrs. Carter & Co., High Holborn, have adopted a method of preserving vegetables for exhibition purposes which has proved very satisfactory. It has been gradually improved and patented, and they are now enabled to produce excellent samples of all the chief vegetables. A display of these in the office window at Holborn evidently proves extremely attractive, for on several occasions we have seen quite a crowd of spectators, who are evidently puzzled by the appearance of fresh-looking Peas in midwinter. For seed shops such specimens are especially well adapted, and it is for this purpose they are recommended. One great advantage they possess over models and ordinary artificial preparations is that they faithfully represent every peculiarity of form distinguishing the variety, and they are thus in a sense of educational value from a gardening point of view.

The method being a patent one of course Messrs. Carter do not explain the whole of the process, but the principle is that after the vegetables have been prepared they are coated with a thin wax-like substance, which resists the action of heat however, and this hermetically seals the specimen, protecting it from the air, and consequently ensuring its preservation for an indefinite period. The substance is then coloured in exact imitation of the vegetable enclosed, and a further coat of a transparent varnish prevents the colour fading by exposure.

Peas, Beans, Beet, Radishes, Carrots, and Tomatoes are remarkably well represented, and in the Holborn display there are twenty-five sorts of Peas, two Beet, three Radishes, fourteen Beans, five Carrots, and nine Tomatoes. The last-named make very effective samples prepared in the manner indicated.

TABLE PLANTS.

THE demand for graceful plants of moderate size and with brightly coloured or clearly variegated foliage is rapidly increasing, and every addition is readily welcomed that will impart some variety to those already in use. We have published several illustrations of plants adapted for this purpose, and another is now given (fig. 24) representing an excellent and elegant plant. It has a somewhat eumbrous name—*Anthericum albo-medio pictum*—that is not likely to increase its popularity, but the merits of the plant are sufficiently pronounced to ensure it a large share of attention. The leaves are tapering, narrow,

Sarracenia Chelsoni, *melanorhoda*, *Wrigleyana*, and *porphyroneura* Ferns.—*Pteris serrulata*, *cretica nobilis*, *hastata*, and *adiantifolia*; *Adiantum farleyense*, *cuneatum*, *cardiochlæna*, *fulvum*, *setulosum*, and *macrophyllum*; *Nephrolepis Duffi*, *Doryopteris palmata*, *Polypodium aureum*, *Scolopendrium vulgare* and *Kelwayi*.

A SIEVE FUMIGATOR.

FUMIGATING is a necessity in all gardens, great or small, where such plants as Roses, Pelargoniums, and Calceolarias are grown. Peach trees need it either for green or black fly, and so do Vines occasionally, and as the time is fast approaching when fly of both colours will be on the increase, I thought a note on the subject might be useful to some who do not understand the best method of performing what is to some a very disagreeable task. Many men—myself among the number cannot stand the smoke without feeling giddy during the time it is necessary to remain in the house. We use a large sized sieve, having an inch



FIG. 24.—ANTHERICUM ALBO-MEDIO PICTUM.

and gracefully arching; white in the centre, and edged with green. It seems to keep its variegation well and requires but little heat.

This *Anthericum* and the following useful table plants were shown by Messrs. J. Veitch & Sons at the Royal Horticultural Society's meeting on October 22nd, 1889. Those with variegated foliage are marked with an asterisk. *Dracenas angustata*, *angustifolia*, *Cooperi*, *terminalis*, *norwoodiense*, *Louisa*, *terminalis alba*, *Doucetti*, *Ernesti Frederici*, and *gracilis*; *Crotons elegantissimus*, *Countess*, *Johannis*, *angustifolius*, *Chelsoni*, and *volutus*; *Aralias Veitchi gracillima*, *Kerchoveana*, *Chabrieri*, and *elegantissima*, *leptophylla* and **monstrosa*: *Panax Victorie* and *fruticosum multifida*; *Carex viridis* and **variegata*, **Bambusa Fortunci variegata*, **Pandanus Veitchei*, **Ananassa sativa variegata*, *Asparagus plumosus nanus* and *tenuissimus*, *Tillandsia Zahni*, **zebrina*, **majus*, and **tessellata*, *Nidularium amazonicum*, *Nepenthes Mastersiana*, **Fittonias Pearcei* and **argyroneura*, **Ophiopogon spicatus*, **Acalypha musaicus*, **Begonias Arthur Malet* and **Louis Chrétien* (improved), **Gynerium argenteum variegatum*, **Eurya latifolia variegata*, *Anthericum latifolium*, and **albo-medio pictum*, *Cocos Weddelliana*, *Geonoma gracilis*, *Kentia gracilis*, *Thrinax elegans*, *Kentia Belmoreana*, *Areca Verschaffelti*, *Phoenix rupicola*, *Solanum Capsicastrum*, **Ficus Parcelli*, *Grevillea robusta*, **Aspidistra lurida variegata*,

mesh, turning it upside down on the floor of the house. If placed on three bricks laid in triangular form so much the better, as more draught would be obtained, although there is a difficulty in seeing the bricks when the house is nearly full of smoke, and the position of the fumigator requires changing, as it does constantly, to distribute the smoke evenly. On the wire of the sieve we place three or four red hot cinders about the size of a hen's egg. These are covered with tobacco paper, which has previously been torn to pieces about 3 inches square. If at all dry—as it should not be—the paper must be wetted, using a fine-rose waterpot. Attention is necessary to prevent the paper blazing and burning too rapidly. Keep the waterpot always at hand ready for this. Some people cover the paper with damp moss; I do not care for the plan, as it prevents the tobacco paper burning so freely as it would do without the moss.

The advantage of using a large sieve is that a greater surface is given from which more smoke is obtained. The greater the amount of smoke at once the quicker is the house filled, and that being the object, the most ready method should be sought. If the cinders are spread all over the sieve a greater body of smoke will be obtained than is possible from any other kind of fumigator that I have seen. When the house which has to be fumigated is a large one, two sieves might be used with advantage at the same time. For the last eight years we have used no other kind of fumigator than a coarse-mesh sieve, and I consider a cheaper or a more efficacious one cannot be found. If the tobacco paper is in a right state, well pulled to pieces of the size named, very little attention is

needed. If there is any doubt in the mind of the operator that the aphides are not killed by the one application, it is better to fill the house with smoke in the morning succeeding the evening on which it was done first. Afterwards a vigorous syringing should be given, which would rid the plants of both fly and dust alike. Tobacco smoke is, perhaps, the best destroyer of black aphides upon the young shoots of Peach trees. Certainly it entails the least labour in applying it, rather than dipping the affected parts in liquid of some sort; generally two doses of smoke will remove the fly altogether. It is better to prevent green or black aphides attacking the tender shoots of Peach trees by a timely fumigating of the trees before the buds burst into bloom. If this be done such trees are seldom troubled with fly. In the case of Pelargoniums or Calceolarias, plants most subject to attacks of aphides, never wait until you see two, but smoke the plants upon the appearance of the first.—H.

BOUVARDIAS.

MR. BARDNEY has given us some excellent instructions on growing Bouvardias. He does not, however, say much in favour of the planting out system. Perhaps he is too far north. Here, in the south-west, they do well planted out during the summer months, but I have known failures to occur from various causes—viz., in the cold wet season of 1888 my plants were very unsatisfactory. A few years ago I saw some at a neighbouring place which were planted in an unsuitable position. This year a friend of mine has failed with them, owing to their being planted too thickly together, so they could not be properly lifted. The first cause of failure none of us can avoid, but the two others we may. We have generally been successful with Bouvardias, and this year particularly so.

Our plan is to make a trench a foot in width, throwing out 4 or 5 inches of soil, that remaining in the trench being well broken up a good spit in depth. The soil which was taken out is replaced by a similar quantity of well decayed material from the refuse yard, passed through a half-inch screen, to which is added a good portion of road grit or other sand. This is well mixed with the upper 4 inches of the natural soil in the trench, and made fairly firm by treading. The Bouvardias are then planted in the centre of the prepared trench, the distance apart being regulated according to the size of the plants. Those which are now occupying 10-inch pots, 20 to 24 inches apart would not be too much. Watering and syringing in dry hot weather is attended to, which, with the necessary stopping, is about all they require.

About a fortnight before potting time arrives the plants are lifted by means of two steel forks inserted opposite to each other at 8 or 9 inches from the stems; the ball is then let carefully into its hole again, and well trodden down. A good soaking of water is given, and if the weather is not showery the plants are frequently syringed for a few days. If they flag a little no fear need be entertained; still it is not desirable. When taken up for potting they are lifted in the same manner as before, care being taken each time not to break the balls. Some of the outside soil is gently rubbed off, in order to get them into pots of proportionate size. Rich soil is used for the bottom and for finishing off the surface, but no attempt is made to ram any down the side of the ball, as the smallest sized pot is used into which it is possible to get the ball of roots. A close pit is in readiness to receive the plants as soon as they are potted. Watering, syringing, shading, and gradually inuring them to the air, comprises the treatment required until they are established, when they may be arranged where they are to flower. Our best flowers are all out, or I should have sent a few for your inspection. I cannot agree with Mr. Bardney that "they are seriously checked however carefully lifted."—T. S., *Henbury Hill*.



THE NATIONAL CHRYSANTHEMUM SOCIETY. THE CENTENARY FESTIVAL.

A MEETING of the General Committee of the above Society was held in Anderton's Hotel, Fleet Street, on Monday, February 17th, at 7 P.M., when there was a large attendance of members, E. C. Jukes, Esq., presiding. After the minutes of the last meeting had been read and signed, and some miscellaneous business had been transacted, including the admission of the Norfolk and Norwich Society into affiliation with the National, the election of five members of the Floral Committee to fill the vacancies caused by the retirement of that number (one-third of the total) in accordance with rule 9. The retiring members were Messrs. Addison, Cannell, Boyce, Gordon, and Gibson, who were re-elected with the exception of the first-named, Mr. Jones of Lewisham being added; seven were proposed. The dates of the Floral Committee meetings were fixed for September 10th, October 15th, October 29th, November 11th, November 25th, December 10th, and January 7th. The Floral Committee regulations were discussed at some length, more particularly with regard to rule 5, which is as follows:—

"5.—In the event of any variety being staged by more than one exhibitor at the same meeting the whole of the exhibits of that variety

shall be submitted simultaneously, and the awards made (if any) shall be made to the exhibit or exhibits staged in the best condition."

This rule had some bearing upon a legal action last year with regard to the certificating of a certain variety, and some thought that a certificate should be awarded to every exhibit which represented the variety in good condition. Sometimes the difference in quality between one which secures the certificate and others that do not is very slight. However, it was ultimately resolved that no alteration should be made, and the rules were adopted, as also were the Exhibition regulations.

The principal business of the evening was the presentation of the report by the Centenary Festival Sub-Committee. It was read by Mr. W. Holmes, and the substance was as follows: It was recommended that the Festival should be held on November 11th, 12th, 13th, and 14th in the Royal Aquarium, Westminster, that the first two days be devoted, as usual, to a Chrysanthemum competition, and the remaining days to a grand general display and fête. The preliminary programme is that Tuesday, November 11th, be devoted to the competition and exhibition with an opening ceremony, the arrangements being under the superintendence of Mr. R. Ballantine, Mr. W. Holmes, and Mr. G. Drain. Upon Wednesday, November 12th, conferences and other attractions will be provided under the management of Mr. Lewis Castle, Mr. G. Gordon, and Mr. C. H. Payne. On Thursday, November 13th, a banquet will take place under the management of Mr. T. Bevan, Mr. R. Dean, Mr. H. Briscoe Ironside, and Mr. John Laing. Friday, November 14th, will be devoted to Conferences, &c. It was further recommended that special centenary medals be presented to the affiliated societies to be included in their respective schedules, and that in some of the leading classes in the National schedule similar medals should also be presented to all the competitors, whether prizewinners or not.

The schedule, the production of which had been included in the sub-committee's work, next came under consideration. The completed list of Judges comprise the following:—

Plants.—Messrs. D. Donald and G. Prickett.

Cut Blooms.—Messrs. R. Dean, George Gordon, J. Kendall, H. Turner, Lewis Castle, and W. G. Head.

Fruit and Vegetables.—Messrs. G. T. Miles and G. Wythes.

Miscellaneous Exhibits.—Messrs. H. Herbst and E. C. Jukes.

The leading addition to the schedule was a centenary class for forty-eight cut blooms, twenty-four incurved and twenty-four Japanese, distinct varieties. The prizes were £25, £20, £15, £10, and £5, with a bronze centenary medal for each exhibitor. Special classes were provided for the four Veitch medals and prizes of £5, to which the Society added second and third prizes. A class was inserted for eighteen incurved blooms, excluding the Queen family, in which the proprietor of the *Journal of Horticulture* offers the first prize of £5. Special prizes are offered by Messrs. John Laing & Sons and a number of other firms. The value of the prizes have been increased in some cases, and altogether the Society is offering a much larger amount than at any previous show.

Proof copies of the schedule were distributed amongst the members, discussion was invited, and a few suggestions were made. It was decided to extend the space for floral decorations, a silver-gilt and a silver medal being offered in addition to money prizes. The report and schedule were then unanimously adopted, and the meeting concluded with the usual vote of thanks to the Chairman.

LARGE CHRYSANTHEMUM BLOOMS.

IT has become a debatable question whether in encouraging the production of such abnormally large Chrysanthemum blooms as are now considered, by those who are termed experts, worthy of prizes, this useful and now very fashionable flower is not being spoiled. There are various sides to this, as there are to every other question. Whether Chrysanthemums are being spoilt by being grown on what I shall term the tall, and two-or-three-blooms-to-a-plant system, for the sake of producing flowers of the greatest possible size and perfect symmetry, it is quite certain that if competitors are to find their names among prizewinners, according to the present standard or ideal, they must adopt it. This fact does not, of course, prove that societies are encouraging good taste, or a profitable way of spending labour and means in offering prizes for blooms of such extreme size produced in twos and threes from one pot, and from unsightly plants ranging from 6 to 10 feet high.

A celebrated nurseryman, who has the most ample means of knowing what is going on in the gardening world, said at the Edinburgh Show that it was his opinion that the rage for monster blooms was doing much harm in directing the labour power of many gardens into a wrong channel, and one that served no good end, classing it in this respect with the carpet bedding system, where thousands of plants had to be reared for the sake of having a toy bed or two that produced no general effect worthy of any garden, and led to an immense waste of labour. In looking at the subject from the standpoint of a large family supply of cut blooms and decorative plants I endorse this opinion, and this fishing-rod system of cultivating this lovely flower is one I would not adopt. It may be questioned very much if it is doing any good for the Chrysanthemum as a flower, or for gardeners and gardening. I was induced to try it for once, but was, shall I say, so disgusted with amount of labour entailed in the production of a few blooms, and with the unsightliness and inconvenience of such tall and gawky looking plants that, unless by a direct order, I would never do it again.

Let it be for a moment considered what labour and expenditure of

materials is considered necessary by an expert to enable him to place forty-eight distinct prizetakers on the board. He must grow 300 plants, 150 in each section, in 9 and 10-inch pots, thus making it necessary to have more than three pots for the production of every bloom that will be serviceable to him on show days, and surely the question may be asked if the "game is worth the candle." Apart altogether from showing, and taking the whole blooms produced thus, it would be difficult to invent a more expensive system of culture, requiring, as it does, a very great amount of labour and the most constant and watchful care. I am not altogether a despiser of moderately large blooms in moderate numbers, because for certain purposes in connection with home decoration they are very useful, effective, and much appreciated. It may safely be asked if greater numbers of blooms of lesser sizes, and produced from a third or a sixth the number of pots, leave anything to be desired on the score of size, if indeed they be not more desirable than the monster blooms. That three or four times the number of blooms, ranging from 5 to 8 inches in diameter, can and are produced from the same sized pots is a well known fact, and surely such blooms are large enough for any purpose short of prizewinning according to present standard. For decorations in which numbers of small glasses holding a single bloom are needed, these larger than ordinary flowers are most effective, and they can be produced in from nines to twelves and more in 9 and 10-inch pots with much less labour than one tall one producing three flowers necessitates.

By adopting the cutting-down system—I believe first practised many years since by Mr. John Laing of Stanstead Park Nurseries—a great number of what, in comparison with bush plants, may be termed extra-sized blooms are produced, with a vast deal less labour than is involved in the production of prize blooms. It scarcely needs to be explained that nine or ten stems from 2 to 4 feet high with a single bloom on each in a 9-inch pot, or a greater number in a 10-inch pot, require much less labour than the same number of blooms on tall plants requiring four or five times the number of pots. In the last week of December I cut eighteen blooms of Ralph Brocklebank from a plant in a 10-inch pot, and most of the blooms were 8 inches in diameter, and I think such proportions are ample for any—too ample for most—purposes.

Dwarf plants produced on the cutting-down system have many points to recommend them as compared with their lanky compeers. They can be made available for many purposes as plants for which tall ones are useless, and when stood on the floor of a house can be looked down on, enjoyed, and attended without any inconvenience. For a large family supply the proportion of such plants to bush plants need not be more than a half or a third, simply because far more of a lesser size of blooms are required for family use. Even with the by no means very limited glass houses of this place the tall plants were found a sort of white elephant. They had their blooms up among the wires of a large orchard house, in many cases needing steps for a 6-foot man to attend to the blooms and gather them; whereas on the cutting-down principle the plants ranged on each side of an orchard house path one had to reach down to them, and the character and beauty of the blooms could be comfortably enjoyed, the most dwarf varieties being quite available and handy for hench decoration in show houses.

In adopting this way it is best to strike cuttings in December or January in the usual cool way, putting one, two, or three cuttings in a pit according to the size of plant ultimately required. I think in a general rule the preferable way is to have two or three in a pot, and bloom them in 9 or 10-inch pots. They are grown on as vigorously as possible without being stopped till, here, near the end of May, and to produce a long succession of blooms all are cut down at the same time. When all are required at a given time, say the middle or end of November, the late varieties should be cut down quite fourteen days earlier than the earlier blooming sorts. And when such sorts as Mons. H. Jacotot, W. Holmes, Margot, Lady Selborne, &c., &c., are required to bloom along with the white and yellow Madame Desgranges, they should be cut down about the 12th or 15th of May. But from our cut-down section last season we had such as Fair Maid of Guernsey, Belle Paule, Eve, Mrs. Heale, Boule d'Or, Ralph Brocklebank, &c., as late as the very end of December. One of the chief points is to grow them with as much vigour as possible till cutting-down time, and so to preserve the leaves to their base, and in cutting down not to cut lower than where there are healthy leaves. Three, four, and five breaks may be preserved from each plant, saving of course the most robust. I am quite certain that those growers whose object is home decoration who have not yet tried this plan with a part of their plants will never give it up if they do.—D. THOMSON, *Drumlanrig*.

THE PROFESSION OF GARDENING.

[Read at the Carliff Gardeners' Improvement Society.]

WHEN we speak of a gardener we at once think of a private garden. We associate gardeners with a garden proper, and in my opinion they are only to be found in private establishments, large or small. True, nurseries, market gardens, places of public resort and recreation, and all the hotanical gardens employ skilled men in their various departments, but they are, I think, regarded more as specialists. Market gardeners are confined to vegetables and fruit; florists to flowers. Nurserymen, too, are becoming specialists. We find one celebrated for his Orchids, another for his Roses, others for Dahlias, Rhododendrons,

Coniferae, &c. In our national garden at Kew there is the same tendency to sub-division. In nurseries and in all public gardens we find one set of men detailed with a foreman for this department, and another for that.

In a short paper like this it would be impossible to do justice to the subject were I to attempt to deal with it from all points of view. I propose, therefore, to omit specialists from consideration, and to treat the matter from a private gardener's point of view. Of these there are several grades, commencing with journeymen, foremen, single-handed gardeners, head working gardeners, and head gardeners. Briefly let me first indicate the start of gardeners, and the usual course of training they undergo during their probation. Many of the leading men to-day, could their history be known, started on their successful career as "kitchen lads"—that is, they were engaged by their respective head gardeners to carry the produce of the garden to the house, and to do any light work in the garden. These lads, starting as they do from the lowest rung in the ladder, have the principles and practice of the art more firmly engrafted in them than is the case with those who start as apprentices, and who often expect to go into the houses, and come out finished in two or three years. These lads are gradually trained to the discipline of a gardener's life, and by the time they are permitted to enter the houses they are a long way ahead, and eager for further knowledge. In most cases they pay a premium and become apprentices, and rightly so, for I think the gardener should be compensated for his trouble, otherwise it would be better policy to engage competent journeymen to the exclusion of apprentices. In large places where valuable collections of plants are grown the raw apprentice is an exception. In such gardens they chiefly engage improvers. The difference between an improver and an apprentice is but slight save in knowledge; but it is obvious that any gardener would prefer an improver who is willing to pay a premium, and who has had the benefit of two years' training in a smaller place, to an apprentice who has nothing save his money to recommend him.

For a premium of something like £5 per annum a lad can become an apprentice in a good place, and for a similar sum can enter into an establishment of the highest standing, where the opportunities for improvement are well worthy of the outlay. This is the best course, but in general young men prefer to take a journeyman's situation as soon as they have completed their apprenticeship. They do not remain long as journeymen, as a rule, before they consider themselves fit for foremen. This is a mistake. I would recommend a course of at least four years in this grade, one of which should be spent in a large nursery or at Kew, the remaining three years being divided equally in at least two good private places. Nothing is gained by remaining too long in one place, especially in the case of journeymen.

The next grade, that of foreman, is one of much greater responsibility, and the journeyman who desires to pose as a first-class foreman should be well grounded in practice, as he will have to take the lead. In this position a few years spent in one or two good places should find him fit to take sole charge. Up to this the path is comparatively easy of ascent, but now the ease is altered.

Most gardeners starting on their career fix their eyes on a position as chief in some large establishment. This is the goal of their ambition. But, alas! for the vanity of human expectation, how often is it doomed to disappointment? The supply being greater than the demand, it is a question of "the survival of the fittest," as to whom the best places fall; the rest struggle for positions of lesser note, from working head gardeners down to single-handed men. They enter into competition even with those whose ideas of success never soared above a single-handed place, and who have circulated in such places their life through. It is certainly difficult for one who has been accustomed to all the resources of a large establishment to adapt himself so small places, but eventually they get accustomed to their position, their courage returns, and they recommence the ascent. The most resolute and determined have occasionally accomplished the feat of reaching the top in their second endeavour, but the majority resign themselves to inexorable circumstances, and remain single-handed gardeners, or perhaps jobbing gardeners, the rest of their life.

A head gardener in a well-appointed place has a position of great responsibility; but if he has properly fitted himself for the post the duties should sit lightly upon him. He can engage, for the various departments, competent and skilled foremen on whom he can rely; he does no manual labour himself, but he sees that everything is done, and done well. With ample scope and assistance to display his talent in landscape gardening and general improvement, the surroundings of his employer's residence should be a model of good taste and style, and

with every convenience for the production of fruit, vegetables, and flowers his gardens and glass structures should be filled with the best examples of skilful cultivation. Let us now take a glance at the hours of employment and the rate of wages. With regard to the former, a good gardener is nearly always employed, but, generally speaking, continuous labour begins at six in the morning, quitting at five in the evening, with an interval of one hour and a half for meals. In addition to this he has to attend to his houses and fires both at night and on Sundays, while as to wages I think the following a fair average:—

Apprentices and improvers,	10s. to 15s. per week,	with bothy and vege'ables.
Journeyman	15s. to 18s. "	" "
Foremen	18s. to 25s. "	" "
Single-handed gardeners	20s. to 25s. "	with residence and vegetables.
Head-working gardeners	25s. to 30s. "	" "

Of the salary of head gardeners I am not able to speak with authority, not having entered the charmed circle, but if we fix their income from £100 to £200 per annum we shall not, I think, be far out, and when we consider other privileges which they are permitted to enjoy we may say that they are fairly well paid. On the other hand, working gardeners have cause, I think, to complain. These men have charge of comparatively large places, often undermanned, regulations to keep as an example to those under them, the worry of striving to keep abreast of others more fortunately placed. The single-handed men are better off than these; their wages are not much less, they have less worry and responsibility, and are in consequence far happier. The bothy referred to in the table of wages is mostly situated within the garden, in which the foremen and those under him reside. It has long been established amongst us, and is, in my opinion, an admirable institution. It creates and fosters a spirit of emulation, and begets a habit of punctuality amongst young gardeners which is of great service to them in after life. And now, having shown the way by which gardens are supplied with men, their time and pay, let us turn and look at the subject from other and wider points of view.

The social position of the gardener is not, I am bound to confess, what it ought to be. We are voted by Society to be a respectable class of working men. The majority of gardeners labour manually. This fact settles the question, and determines our social position. It is useless to speak of the dignity of labour with reference to social position; whatever dignity labour may have in the concrete, it has none in the eyes of society.

If we visit a theatre, and a gardener should be represented on the stage, it is certainly not a very exhilarating spectacle for his prototype in the audience. In literature the case is different. Here we see the gardener appreciated, not ridiculed. Books in abundance on all subjects having relation to horticulture, &c., and most gardeners aspire to the possession of a small library. The number of monthly and weekly magazines and papers are many and good, some of exceptional merit, and when bound form handsome and useful volumes. The ordinary weekly and some of the daily newspapers find it pays to insert a column of matter having reference to the garden. Certainly we are well served by the Press.

Great Britain may be regarded as the headquarters and home of gardening. In no other country in the world is it carried to such perfection. The stately homes which adorn our country are not to be matched elsewhere in the world. The sixteenth and seventeenth centuries saw a great impetus given to landscape gardening. All through our history, up till that period, we do not find gardening much in evidence, but then it commenced its rise from obscurity, and rapidly became recognised as an art. The eighteenth century saw the introduction of exotics, new and rare plants, ornamental trees and shrubs of all kinds. Glass structures became a feature in the gardens of the wealthy, botanical gardens were established, and literature assisted in the general progress. But remarkable as was the progress made during these three centuries, the nineteenth century is still more remarkable.

The accumulation of wealth in this century has been enormous. It has been estimated that the income of the United Kingdom during the last twenty years has increased six hundred million sterling. Everywhere we see evidence of this great prosperity. In 1760 the Earl of Northumberland (although his household consisted of over 150 persons) kept but one gardener. Compare this with the state of things to-day. Now the gardening department of a large establishment is by far the largest, some of our head gardeners having as many as eighty men under them. During the last twenty years we have seen great improvements and changes. Cheap glass and the cost of erection of glass houses has rendered useless the old heated walls for Peach culture. We

miss the New Holland plants; they are nearly gone, though once a feature; their place is taken by the Orchids. Improvements have been effected in the heating and ventilation of glass houses. Flues are gone, steam was tried and found wanting, and hot water holds the field. By the introduction of the lever system in ventilation a range of houses can be aired to a nicety in a few moments. All these go to make a gardener's life less laborious and more agreeable.

The generation of gardeners that has passed away have left their impress behind them in an unmistakable manner. Amongst them two men stand head and shoulders above the rest. The noble structure in glass and iron at Sydenham was designed by one who had trod the path of gardening life from his youth, and we are proud to point to Sir Joseph Paxton as one of us; the other, remarkable for his extraordinary perseverance and wide knowledge, won renown as a landscape gardener, and Loudon's Encyclopædias remain a monument to his great capacity and thirst for knowledge. In looking back to the past we are struck by the fact that wealth seems to be more divided than formerly. We do not see such great places as Chatsworth, Alton Towers, Trentham, and Welbeck, now in course of erection. This age of great landed estates is gone—their dissolution has set in; but the work of our forefathers, who planted and embellished the surroundings of these great houses, still stand, and will stand for a long time yet. What they did they did well, and we may take a lesson from them in this, though we may not be allowed the scope they were privileged to have. This is the age of the middle class—the merchants and princes of commerce. Having been successful in business their first thoughts turn to a beautiful home, and for this end they call in the services of the gardener, and thus we see that increase of national wealth increases the demand for gardeners. There can be no doubt that a pure love of flowers has induced many to remain in the profession who would have been far more successful in other walks of life. Canon Hole's love for the Rose was intense, and the spirit which animated that gentleman is strong amongst gardeners. Some of the happiest moments of a gardener's life are passed in admiring his plants, which, after long and careful attention, have at length rewarded him by their beauty and high quality.

Of the four nationalities which together form the British people, Scotchmen in the past have been in the front as gardeners, this arising from their superior education and consequent ability, but Englishmen are beating up, if they are not already in the van. We see the Royal gardens of Windsor and Sandringham in the charge of a Welshman and an Englishman respectively, and if we glance down the directory the array of well-placed English names compare favourably with those of Scotchmen, whilst Irishmen and Welshmen are lagging in the rear.

We will now briefly touch on societies. At the head is the Royal Horticultural Society. From this Society, and from other minor societies that have been and are being formed throughout the country, gardening has derived immense benefit. Many of these latter are projected in the interest of one particular plant or flower, such as the Rose, Dahlia, and Chrysanthemum. While encouraging excellence of cultivation their annual exhibitions have been the means of inducing many to patronise horticulture when other means have failed to excite their interest.

Then come the mutual improvement societies, which exist in nearly all our large towns, for the purpose of improving young gardeners and for the general diffusion of horticultural knowledge, and as far as my experience goes they do it admirably. In these days, when prosperity is with us, and labour, skilled and otherwise, is agitated, we are led to inquire whether anything can be done to further the interests of the gardeners by means of combination, but we are confronted at once by great and insurmountable difficulties. Even were it possible for gardeners to combine, I do not see that it would mean success; on the other hand it might mean ruin. We should not forget that we are chiefly engaged in the production of luxuries which could be dispensed with, and when we remember the isolation of gardeners, their quiet, retiring, and unobtrusive habits, we may as well dismiss the subject from our thoughts.

With benefit societies the case is different. In this way we might do much to ease our path in the evening of our life. Gardening being in an unusual degree a safe and healthy occupation, we should join a benefit society devoted to gardeners only, and I am pleased to learn that there is such a Society in existence, and from long and careful consideration of their rules I can safely recommend "The United Horticultural Benefit and Provident Society" as worthy of the confidence of all gardeners, founded, as it is on the principle of thrift, and helping those who help themselves. The Gardeners' Royal Benevolent Society does not fill the place of a benefit society, as its name indicates; it is

more of a benevolent institution, doing admirable work in that direction, and well worthy of the support of gardeners.

Now in conclusion let us see what are the prospects and the lessons we may have learnt from a consideration of the past. We have seen that Scotchmen in the past by reason of their superior education and sound practical knowledge have held their position in the front with ease. This should teach us something for our guidance in the future. A good practical knowledge is a great thing, and will always count. But scientific knowledge in combination with a good practical knowledge will count for a great deal more. Let us not forget that compulsory education is the law of the land. Our Board Schools are turning out the men of the very near future with a much more advanced education than formerly. The labouring man of the future will be the equal of the schoolmaster of the past, and it behoves gardeners of all grades, especially young men, to see that they are not behind in the running. Closer attention to the study of such subjects as botany, geometry, and chemistry in relation to soils will be found to be of great assistance to gardeners, and will go far to elevate them. For our services to be in demand we must acquire a reputation for skill and sound knowledge. The history of our leading men shows us that there is no royal road to success; step by step they rose, increasing their knowledge as they went, until at last, the summit gained, they could turn and gaze beneath at those who were distanced in the steep ascent. Progress is the order of the day and the spirit of the age, if we do not go forward we go backward. Being constantly in contact with the most beautiful objects of Nature, gardeners live a healthy moral life, and their thoughts naturally have a high range; therefore in conclusion let me remind them of those well-known lines of Longfellow:—

"Lives of great men all remind us
We can make our lives sublime,
And departing leave behind us
Footprints on the sands of time.

"Let us then be up and doing,
With a heart for any fate,
Still achieving, still pursuing,
Learn to labour and to wait."

—CHARLES LEWIS, *Gardener, Ivy House, Park Place, Cardiff.*



NEW ROSES.—HYBRID PERPETUALS.

A CONSIDERABLE change has taken place in the new Roses introduced from France, for whereas formerly the Tea Roses formed a very small portion, amounting only to some six or seven, and between fifty and sixty Hybrid Perpetuals used to be announced, now the two classes much more nearly approximate in numbers, for this year we have twenty-one Teas and twenty-eight Hybrid Perpetuals. There is no doubt that the increased attention given to Tea Roses with us, and their increasing popularity, have reacted on the French raisers, and have led them to pay more attention to the raising of seedlings of this class than used to be the case. It is another curious instance of the law of demand and supply. Formerly, when Tea Roses were little cared for few were raised, now when so many are looking for them the supply is quadrupled.

It is no wonder that we look in the most placid manner at the lists of new Roses, when we find that of the twenty-four which stood highest in Mr. Mawley's analysis of Tea Roses exhibited in 1888 (I do not quote last year as it was so exceptional a season), there were only three which had been sent out since 1880, and there was not any of later date than 1833. The analyses given by Mr. Wilks in the proceedings of the Rose Conference tallies very much with this, for in the first twenty-four, where the voters amounted to seventy-nine, there were but three additions to the number of new Roses, and of these one obtained twenty, another twelve, and another ten votes, the highest number, A. K. Williams, having seventy-one votes, and these three varieties are all English raised flowers. No wonder, then, that we are not much excited by the amount of new Roses, no matter how glowing the descriptions may be. And withal we must see what our French friends try to tempt us with this year, and we find M. Eugène Verdier does not head the list as far as numbers are concerned this year, as that honour (?) falls to Levêque et fils, and his flowers are not so numerous as in former years, as he only announces five.

EUGENE VERDIER.

Abel Chatenay.—Vigorous plant of erect habit; flowers large and well shaped, brilliant currant red flushed with carmine.

Buffalo Bill.—This name seems to have taken with the French, for

I have seen several plants so named. Erect habit; flowers large, flat; colour deep rose. This is a form which has much gone out of favour of late years.

Laurent Carle.—Growth very vigorous and erect; flowers large, full, and well formed; colour beautiful carmine rose, very fresh in the colouring.

Leopold Vauvel.—Flowers very large, of admirable form, holding themselves well, very sweet scented; colour clear red, sometimes shaded very fresh.

Skobelev.—Flowers large, well formed, rose, much shaded with lovely lilac; the buds are enormous.

LEVÊQUE ET FILS.

Duchesse de Dino.—Plant vigorous; flowers large, well formed; colour red velvety crimson, shaded with deep carmine.

Emile Bardiaux.—Plant vigorous; flowers large and well formed; colour bright carmine, shaded with flame colour and violet.

Laforçade.—Colour brilliant carmine red; plant vigorous.

Madame Thibaut.—Stout, very vigorous; flowers large, full, imbricated; colour tender satiny rose, shaded with bright carmine rose.

Martin Cahusae.—Plant vigorous; flowers large; colour bright carmine rose.

Maurice Levêque de Vilmorin.—Plant vigorous; flowers large, of a bright clear red, shaded with deep flame colour and brown.

LIABAUD.

Antoine Revoire.—Plant vigorous; flowers large and well shaped, colour red shaded with claret.

Mademoiselle Marie Magat.—Plant vigorous; flowers large and well formed, colour brilliant clear red.

Souvenir de General Richard.—Hybrid of Portland Rose; flowers very full, colour scarlet red shaded.

Vicomte de Lauziere.—Flowers very vigorous, large, well formed; flowers clear purple red.

KETTEN FRÈRES.

Antoine Schurtz.—A flower raised by the Hungarian raiser Geshe-mind, and sent out by this firm. Plant moderate; flowers large, full, and well formed, of the shape of Centifolia; flesh colour.

TESNIER.

Docteur Douet.—Plant vigorous; flowers large, well formed, of the most brilliant fiery red, deeper in the centre.

SOUPERT ET NOTTING.

Gloire de l'Exposition de Bruxelles.—Plant very vigorous; flowers large and well formed; colour purple amaranth, deeply shaded.

Oscar II. Roi de Suède.—Very vigorous; flowers large, well formed; colour carmine, flushed with vermilion, and shaded with brown. To this variety is appended the note that it was sent into commerce last May, and is now procurable in good plants at seven francs each.

PERNET FILS ET DUCHER.

Gustave Peganeau.—Plant vigorous; flowers extra large, full, cup-shaped; lake red, with brilliant carmine.

LIÉDÉCHAUX.

Jeanne Hély d'Oissel.—Plant vigorous; flowers large, well formed, of admirable shape; colour purple red, bright in the centre, reverse of petals purple.

NABONNAND ET FILS.

Madame Alice Allatini.—Plant very vigorous; flowers very large, nearly full; colour satiny ruby red.

PERNET PÈRE.

Madame Bertrand.—Plant very vigorous; flowers very large, nearly full, colour beautiful clear rose, the reverse of petals crimson red.

WIDOW SCHWARTZ.

Madame Chabal.—Very vigorous plant; flowers medium size, full, cupped, colour carmine rose with silvery sheen.

Souvenir de Gomot.—Plant vigorous, flowers large and well formed, globular, colour fiery red, centre deep velvety claret colour.

GUILLOT ET FILS.

Madame Renahy.—Plant vigorous; flowers well formed, colour clear rose with carmine centre, reverse of petals very tender rose.

DUBREUIL.

Marie Sage.—Plant very vigorous and free flowering, seedling from Hermosa, colour of China rose. To this a note is attached in the list I have before me. This Rose is stated to be a hybrid of Bengale, what is it?

MOREAU ROBERT.

Souvenir Grégoire Bordillon.—Plant vigorous; flowers large and well formed, colour bright scarlet red shaded with vermilion.

J. DUCHER FILS.

Souvenir de Rosieriste Jacobs.—Plant very vigorous; flowers very large, full, well shaped, colour bright cerise red, veined with bright rose.

I cannot say that this list is one to very much inspire us with hopes. Those credited with the greatest number are Messrs. Eugène Verdier,

Liabaud, and Levêque. These have all given us from time to time good Roses, although unfortunately they have been weighted with a vast number of bad ones. Many raisers, some of whom are new to us, give only one each, and it is possible that amongst them may be found a good flower or two, but the probability is that we shall see very few of them. The English Rose growers for sale have frequently wasted money, time, and space in propagating worthless things, that they have very considerably contracted their orders for new varieties, and of course amateurs never do, and I fancy the growers are in their orders more influenced by the names of the raisers than by the descriptions of the flowers. We may see some of them this season, and then be able to judge. *Nous verrons.*—D., Deal.

MARÉCHAL NIEL.

IN answer to "M. G. D.," page 108, I have seen Maréchal Niel Rose do most satisfactorily on a back wall in a vinery, but for my part I would rather keep the wall bare than run the risk of getting insects into the house.—S. SCOTT, Rathmore.

WILLIAM A. RICHARDSON.

I SEND you by post a box of W. A. Richardson blooms; they were cut from a plant three years old, grown in a pot and trained on the roof. The plant covers a space of 5 feet by 2, and is very badly cankered. It was pruned and placed into a house on the 10th of October last, the temperature being about 55° by night and 65° by day, and it has produced seventy-one flowers, in some cases four and five in a truss. They are a good colour, but the foliage is small, owing no doubt to the cankered stem. No mildew has appeared, and we cut the first bloom on the 20th of December, the enclosed being the last on the plant. I should like to know if any of your readers have had experience with it as a winter-flowering Rose, and if so with what success.—SUSSEX.

[The specimens we have received are highly satisfactory.]

GARDENERS OUT OF SITUATIONS.

I WISH to inform your correspondents that there is in Belfast a society for the relief of gardeners out of employment. It has been established several years, and is registered under the Friendly Society's Act. Members pay 2s. 6d. admission fee, and 1s. per month afterwards, which entitle him to 10s. per week for two months when out of place. If not suited at the end of the two months, by application he can have his case brought before a special meeting. No member is entitled to benefit till he has been two years a member, neither can any member receive benefit more than once in two years. Noblemen, gentlemen, nurserymen, and seedsmen may become honorary members by paying £1 per annum.

I am sure Mr. Dickson, Ormeau Park, Belfast, would have the full list of rules sent to any address; or, if desired, I will forward them for publication in this valuable Journal.—CORRESPONDENT.

[Please send the rules for our examination.]

I HOPE many of your gardening readers will communicate their ideas on the above subject, so that it may be seen to what extent the gardening fraternity concur in the suggestions thrown out by your correspondent "B." page 60, and other correspondents at page 118. This is the only means by which we shall ever secure a self-help society to render assistance to those brothers of the craft who may be out of situation and requiring help. My idea is gardeners should combine together for their own interest more than any other class of working men, but I am sorry to say they are far behind the times in this respect, but as such a favourable opportunity presents itself now it should not be lost. I notice your correspondent, "R. M." page 118, is inclined to think it is but an old cry "so many out of place," for he states it has been the same throughout his forty years' experience. I am inclined to think "R. M." is over the stile and through the wood, and has landed there without the aid of a self-help society, and consequently he thinks others might do the same. As I have only seen twenty years' experience, I cannot go back so far as "R. M." to form an idea, so I will mention the experience of two good old gardeners who can boast of over forty years trudging in gardening, and they say they never knew so many gardeners out of place as at the present day, and they attribute this to so many of our once noble gardens being closed.

"R. M." again says, "'B.'s' ideas respecting gardeners going into the nursery and thereby causing an injury to the permanent staff is a ridiculous assertion." It is a well-known fact, however, that if gardeners who are out of place did not go into the nursery, nurserymen would have to employ a much larger number of regular hands, and pay them higher wages. Now if we had the self-help society, the gardener would not enter the nursery unless he received the same wage for the same amount of work as that of the permanent hand. I shall be most happy to subscribe to any society which may be formed for helping gardeners.—ALFRED BISHOP, Westley Hall Gardens.

It is not long since I saw one of those who are sometimes termed "frozen-out gardeners," so that I have read with the greatest interest the correspondence that has been going on in the *Journal of Horticulture* recently. I am glad to see that there are gardeners in favour of a move being made in some way to help their less fortunate brethren. I should be only too glad to assist with my mite whenever it is required, and I know others who would be glad to give their support as far as it is in their power. My experience seems to have been much the same

as "B.'s." I hope this matter will be taken up, I think it will find plenty of supporters.—W. J.

AURICULAS IN SCOTLAND.

The early part of winter being so mild Auriculas started into growth about the first week of the year, fully a month earlier than usual. During the whole season, since the plants were placed in their winter quarters, they have looked healthy and well, and notwithstanding the absence of frost they have required little water. A large number of the plants are now so far expanded that the truss is seen. In my own collection Prince of Greens was the first to give promise of a bloom, then Acme, then my own Mrs. Sinclair, and now there is a host of others. From the advanced state of growth among the plants I anticipate an early bloom, even though frost come farther on. There has been only one death in my whole stock, and my friends write me that they are much in the same condition. Young growers should notice that if at this time any plant does not show signs of expanding its foliage it should be examined, and the chance is decay will be found in some part of the stem. When there is no frost the plants should be getting more water, and the surface soil should be stirred without disturbing the fibres if possible, and where the soil has sunk in the pot fresh soil should be added. I have always held that top-dressing the whole stock is a waste of time, and now many growers are of the same opinion.

The number of Auricula houses is increasing in Scotland. It is the most satisfactory way of growing the plants, as one can get amongst them whatever the weather be. I have been exceedingly pleased to see from requests to myself and other growers for the older varieties that the idea of growing only a few of what are called the finest kinds is not spreading in Scotland. From my correspondence I learn that there are many seedlings on trial which are expected to take good places among our best flowers. The Scottish Primula and Auricula Society is to hold their Show in Dundee this year instead of in Edinburgh, where it has been hitherto held. It is very likely that a Narcissus section will this year be added, which will be an additional attraction. I hear a prize is to be offered for the best self seedling stage Auricula (named) entered for competition for the first time. It is expected that the Show in Dundee will be a thorough success.—JOHN MORRIS.

SCENTED FERNS.

DRYNARIA (POLYPODIUM) WILLDENOVII.

It was recently announced in the London daily papers that at one of the Saturday meetings of the Royal Botanic Society at Regent's Park "an interesting sweet-scented Fern was exhibited. The perfume, which closely resembles that of fresh hay, is retained after the frond is dry, and lasts for many months, if not years, imparting its fragrance to anything in contact with it. The Secretary thought it might be grown as a source of perfume by amateurs, if not commercially. As yet it appeared to be little known in collections of exotic Ferns." This paragraph seems to have awakened the interest of a correspondent of a metropolitan paper, who produces the following remarkable article, but whether it is written in a satirical and sarcastic vein, or in sober seriousness, we must leave our readers to discover. It seems to be an age for calling public attention to extraordinary plants. Lately we have had "the Weather Plant" brought into great prominence by a scientific report from Kew, and now the Regent's Park garden produces a rival phenomenon in the shape of a "Fragrant Fern."

But let us see what the writer named has to say on the subject. "At certain times and seasons in the history of the animal and vegetable kingdom there are plants and animals, birds, beasts, and fishes which have, as it were, 'greatness thrust upon them,' in the sense that wholly unsuspected qualities of attraction and gratification are discovered in their lives, habits, and structure. Thus for centuries there lived in harmless and blameless obscurity a tiny shell-fish, the murex, by the shores of Tyre. No one minded him as he clung to his Syrian rock, and as he was not good to eat he was let severely alone. One day, however, a fisherman drying his linen garments by the sea-shore happened to crush the little murex, and, behold, his fisher's robe was straightway dyed a deep purple, which no cunning could wash out. The good folk of the district saw at once that there was distinct artistic and commercial value in the murex, and after a few alfresco experiments learnt the great secret of the Tyrian purple. Henceforth the murex and his crimson juices became part and parcel of the symbol of imperial sovereignty, and ever since his august colour has ruled the world. The cochineal insect, the musk-rat, and the leech as a phlebotomist, are among similar examples of discovered charms and values; but our present subject deals with the latest developed attraction of a highly respectable member of the group of cryptogamic plants in the shape of the sweet-scented Fern from the Royal Botanic Society's Garden, which was exhibited by the Secretary, Mr. Sowerby, at the meeting of the Society last week. Ferns have always been mysterious puzzles to mankind, especially in the inaccurate days when there was much strange talk of their so-called 'seeds,' which are now called 'spores.' We know that Shakespeare makes Gadshill say, 'We have the receipt of Fern-seed, we walk invisible,' and Ray ridicules Tragus for spreading linen cloths on the ground to catch the seed of Ferns on the eve of Midsummer Night, when, as Ray properly observed, it would be indeed astonishing if any fell, seeing that it is not mature until the

autumn. However, neither the early botanists nor the Elizabethan dramatists speak of a sweet-scented Fern—though there is one English variety with a slight odour—and they would be interested to learn what has been the most recent exploit of that fine luxuriant Fern known as 'Drynaria Willdenovi,' which came over to us some twenty years ago from its native land of the Mauritius, and lived in the Botanical Gardens for many a long day without attracting any special attention. It seems that, about a year ago, some observer with an acute sense of smell came into the house where are the broad 'vandyked' leaves of this Drynaria, and asked, 'What is it that smells of hay so nicely?' Sundry scientific minds were quickly on the scent, and they soon ran the hay-smelling Fern to its native pot. The scent is unmistakable: it can be caught from the decaying leaves, but comes out strongest and best when the leaves are thoroughly dried, and, as it were, made in a natural 'pot-pourri.' If a few of the long strong stalks—down which the foliage, resembling 'adder's tongues,' runs for about a foot—are gathered and placed in a room, they will soon 'bring the scent of the hay' over the domestic footlights, and, on the whole, our visitor from the Mauritius has made a sudden and successful bid for a perfumed popularity, and promises to do well in the character of the Fragrant Fern. The Secretary thought it might be grown as a source of scent by amateurs, if not as a commercial investment, and altogether this amiable member of the famous family seems likely to make a name for itself.

"The curious part of the story, however, is that it is only of comparatively recent date that this Fern thought of going into the perfumery business. For years it was too sleepy or too indolent to express its Mauritian soul in giving forth the subtle essence of English new-mown hay. What woke it up? Who whispered to it of a new triumph? What new vitality from the watering-pot crept through its slender, wiry roots and up its dark brown cylindrical stem, so that it suddenly quickened into a new grace? The Royal Botanical Society and the Kew Gardens authorities, who not long ago wrote to ask Regent's Park for one of these plants, may say what they like about it, but our own view, confirmed by a recent personal interview with the Fern itself, is that the new effect is entirely due to the intruding sparrows, who for years have lived and built their nests in those lordly glass houses in Regent's Park, at which, at all events, nobody is inclined to throw stones. There is a prosperous colony of eternally chattering, twittering, gossiping sparrows who have taken a fancy to semi-tropical temperature, and who live and nest amongst giant Palms and the Eucalyptus—another plant, by the way, that has of late years become famous in the line of *materia medica*—and such vegetation as they have scant right to roost upon. These impudent little birds no doubt told the sleepy tropical plants all about the perfumes of the English flowers, and, it may be, went so far as even to 'chaff' a big Tree Fern, whose ancestors may have embowered a woolly elephant or a five-toed horse, with being altogether beaten by our Roses, Violets, and Mignonette. And their scornful gossip came to the Drynaria Willdenovi, and they cheeped out, with the audacity peculiar to a London sparrow—that very gamin of birds—'Look here, old Dryasdust Drynaria! why can't you smell as our plants do?' Then the heart of the Mauritian awoke within him, and he said, 'Sparrows, you are flippant but suggestive; I incline to agree with you, and I shall endeavour to become at once fragrant and famous.' Certainly he has fairly accomplished both tasks, and taken away the reproach of his brethren among the exotic Ferns. It is but right to state that this theory is as yet wholly unsupported by any scientific evidence, but, pending the voice of the scientists, we stand by our sparrows. In a smaller house adjoining the palace 'where sparrows build' may be found another curious example of a perfumed plant, or rather of one that was in its early youth, like many of the human family, given to costly odours. It is a native of Brazil, and is called the *Geonoma Pamila*, or 'Scented Palm,' and when it was a soft green young thing it used to give forth a strongly perceptible fragrance as of Violets. Some way or other, however, as it got old it got sulky, and did not seem to care so much for the niceties of its toilette; and now it has just as it were an echo, and no more, of its pristine perfume, and you must climb up and get quite close to it to catch that echo. All the same, mindful of the poet's lines, 'Odours, when sweet Violets sicken, live within the sense they quicken,' it certainly does its best to recall and suggest the peculiar charm of its early days, and deserve the proud title of the 'Scented Palm' inscribed on its recording stick. There are no sparrows in the place where this Palm lives, which may account for its indolence; but no doubt some intelligent cheeper will find his way to the hot, moist atmosphere of this little Eden of Orchids, and by 'winged words' warm up the *Geonoma* into happy rivalry with the Mauritian Fern, which is just now so happily busy distilling essence of hay."



FRUIT FORCING.

MELONS.—Young plants have progressed favourably. Make a ridge in the Melon house the whole length of the bed, about 2 feet wide at

the base, with the top flattened so as to give a depth of 10 to 12 inches, which is preferable to hillocks, the soil being made rather firm, and when warm the plants may be turned out, firming it well about the roots, and bringing it up to within an inch of the seed leaves. The plants may be placed 2 to 2½ feet apart, the leading or primary shoots being taken up without stopping until fully two-thirds the distance they are intended to travel is reached, then pinch out the point of each. When three or four lateral joints are made the points should be taken out. Some varieties will show fruit freely on the first laterals, and as early Melons are a consideration let them remain, taking out the point at a joint above them, but not stopping in this case until the flower is fertilised. To allow all the laterals to remain would much overcrowd the foliage, therefore rub off every alternate one whilst they are quite young. After stopping the first laterals the succeeding growths will show fruit at the second or third joint. Train the growths thinly and regularly, so that every part has full exposure to light. The plants will require but little water as yet, nevertheless maintain the soil in a moist state, avoiding saturation. Sprinkle every available surface in the morning of bright days, and again at closing time or early in the afternoon. Ventilate carefully, avoiding currents of cold air. Some hexagon netting or scrim canvas placed over the ventilators will break the force of cutting winds. Maintain the night temperature at 70°, falling to 65° in the morning, 5° less in severe weather being better than seeking to maintain the higher temperature by sharp firing, 75° by day, rising to 80° or 85° from sun heat; keep bottom heat steady at 80°. Shift later sown plants into larger pots or add soil as the plants advance, stopping those for frames at the second leaf, but not those for trellises, placing a small stick to each for support.

Melons in Pits and Frames.—With the shoots trained over the surface of the beds, the plants, being stopped at the second leaf, will produce two shoots, and these in turn being stopped will result in four shoots with smaller ones. The weaker should be rubbed off, and two of the strongest trained to the front and two to the back of the frame or pit. Rub off all laterals to a distance of 6 inches from the stem. This will keep the collar clear—an aid against canker. Stop the principal shoots when within a foot of the side of the pit or frame, and thus throw vigour into the laterals, which will show fruit at the second or third joint, stopping them at one joint beyond the fruit. Cover the lights with double mats at night and see that linings are regularly attended to, renewing the old as required. About a fortnight before it is desired to make the beds the dung and leaves should be thoroughly incorporated. In a few days it will be seen whether there is sufficient moisture to produce decomposition, fermentation being the result. If not, turn the whole, sprinkle with water so as to moisten the mats, and when there is a good heat turn it again outside to inside and *vice versa*, two or three turnings being required at intervals of about four days. The bottom heat of fermenting beds should be 85° to 90°.

CUCUMBERS.—Examine the plants in bearing once or twice a week, removing bad leaves and exhausted growths, thinning the shoots, stopping and removing old and deformed fruits. Overcrowding and overcropping must be carefully guarded against, as they are highly prejudicial. In securing young shoots to the trellis do not tie them in too tightly, but allow room for development. Plants that have been in bearing some time should have the surface soil removed and have warmed fresh soil added. Turfy loam with a fourth of well decayed manure will answer for Cucumbers and Melons. However, we prefer turfy loam without any admixture of manure, impart vigour by rich surface dressings or liquid manure. A sprinkling of the advertised fertilisers we find extremely useful, being careful not to apply them too freely and too often. The bottom heat should be kept steady at 80°, the night temperature 65° to 70°, 5° less in severe weather; 70° to 75° by day, rising to 85° from sun heat, closing early in the afternoon, damping the pathways on bright mornings and at closing time.

For young plants hillocks or ridges should be formed as described for Melons. Afford the same temperature as advised for older plants. If the sun be powerful, and the plants show indications of flagging, shade them for a few days. Attend to dung-heated frames with linings as required, protecting at night as advised for Melons. Do not apply more water than is needed to keep the plants gently growing. Where red spider has appeared on winter fruiting plants coat the pipes with sulphur and lime in equal parts, heating the pipes to as near boiling point as possible for a couple of hours on a calm evening, taking care that the temperature of the house is not more than 80° to 85°, and then allow the pipes and house to cool down to their regular temperature. The foliage should be thoroughly dry. The same process may be repeated the following evening, and is generally effectual, the mixture being applied whilst the pipes are hot.

PEACHES AND NECTARINES.—*Earliest Forc'd House.*—Syringe the trees every morning and afternoon, in order to keep insect pests from attack or to dislodge them. If, however, the weather be dull, the syringing must be practised early in the afternoon, so that the leaves may become fairly dry before night, or if that does not take place the afternoon syringing must be dispensed with, damping the paths and borders instead, as keeping the trees dripping with water through the night causes weak growth and thin foliage. See that the outside border is well protected from the cold, and water the inside border with liquid manure, which will much assist the fruit in swelling, especially in the case of weakly trees long subjected to repeated forcing. Vigorous trees will not require any stimulants, excessive vigour being unfavourable to the fruit safely passing the stoning process. When the fruit is the size of small marbles thinning may be commenced, but remove a few fruits

only at a time, first removing those that are badly placed. Disbudding must be followed up, taking care to leave a growth at the base of each bearing shoot, and another at its extremity, or, at least, level with the fruit. The shoots retained for attracting the sap to and supporting the fruit should be stopped at the second or third leaf, but the basal shoots must be trained to take the place of those now bearing fruit. Shoots upon extensions must be left at 12 to 15 inches distance apart to form the bearing shoots of the future. It is a great mistake to crowd the trees with growths that cannot be fully exposed to light and air, but maintain an equal balance of growth throughout the trees.

Second Early House.—Continue fertilising the flowers gently, distributing the pollen by shaking the trellis or drawing over each flower a camel's-hair brush, or other means of distributing the pollen. Lose no opportunity of admitting air, avoiding, however, cold currents, and leave a little ventilation constantly at the top of the house. The night temperature may be maintained at 50°, 5° less on cold nights, 55° by day artificially and 60° to 65° from sun heat, not allowing a rise above 65° without a free circulation of air.

Houses Started Early in February.—Trees started early in the month are swelling their flower-buds rapidly. Syringing must cease when they show colour. Maintain, however, a good moisture by damping paths and borders two or three times a day as the weather may dictate, avoiding a close stagnant atmosphere. If the flowers are numerous thin them by rubbing the hand downwards on the under side of the shoots, which will strengthen the remainder, enabling them to set better. Examine the trees closely, and if there be any aphides fumigate with tobacco, so as to destroy them before the flowers expand. Continue the temperature at 40° to 45° at night and 50° by day, and 60° to 65° from sun heat with free ventilation. Allow a little ventilation constantly at the top of the house.

STRAWBERRIES IN POTS.—The first plants have set their fruit. Remove all badly set or deformed fruits, leaving from four to half a dozen of the most promising fruits to each plant, and aid their swelling by liquid manure. The temperature should be 60° to 65°, advancing to 75° by day with moderate ventilation. Avoid drying currents of air, as they injuriously affect the swelling of the fruit. Examine the plants twice each day, giving water to such as need it, and in sufficient quantity to show at the drainage. See that succession plants are kept free from aphides, fumigating and repeating if necessary before the flowers open, so as to have them perfectly clean. Introduce more plants, so as to maintain the succession. Sir Joseph Paxton, Sir Charles Napier, President, Auguste Nicaise are admirable sorts. British Queen and other late sorts may now be started, bringing them on, however, very gently.

THE FLOWER GARDEN.

Hotbeds, Propagating.—A sweet and fairly brisk bottom heat, generated by a bed of leaves and stable manure, is of the greatest assistance to the propagator, this being far preferable to the dry heat from hot-water pipes, whether for seed-raising or striking cuttings. This season the leaves especially are much saturated, the rainfall being heavy and continuous, and it will be found they are slow in starting, and will retain heat for a short period only. They are also certain to be badly infested by small white and black slugs, for which a close watch will have to be kept, or much injury may be done in one night. If the manure is mixed with the leaves and all thrown up into a conical heap, being also enclosed in dry straw litter, all will soon become equally hot, much rankness and moisture being got rid of in the course of about ten days, one, or at the most two, turnings inside out being given. It is a good plan to cover the hotbeds when made with about 6 inches of cocoa-nut fibre, this being very clean for plunging in, and the slugs do not like it. When the bottom heat is obtained solely with the aid of hot-water pipes there ought to be a good depth of clean plunging material provided, nothing being better than a depth of 12 inches or rather more of cocoa-nut fibre, the next best thing being sawdust. If either material becomes very dry, and this is liable to happen quickly, it ceases to conduct heat properly, therefore keep it frequently and uniformly moistened.

Sowing Begonia Seed.—All minute seeds germinate more surely when sown before the sun gains much power, a dry heat or much sunshine usually proving fatal to the delicate growths. The earlier, therefore, Tuberous Begonia seed is sown the better. Fill either heavily drained 6-inch pots or pans with light soil, nothing being better than a mixture of two parts of either good fine leaf soil, or failing this, peat and one part of fine light loam, with a sprinkling of moderately coarse sand. The surface should be made very smooth and even, and well moistened a few hours prior to sowing the seed. Silver sand on the surface not unfrequently does more harm than good, the seeds germinating more surely when sown on the surface and not covered in any way. Plunge the pots in a brisk bottom heat, some provision, if need be, being made to exclude worms; cover closely with squares of glass, and shade heavily till the tiny plants are seen, then gradually expose to light, taking care, however, to ward off bright sunshine. Not unfrequently the soil keeps sufficiently moist without the application of water till the seedlings appear, and in this case a great percentage of them are reared. If from any cause the soil becomes at all dry, the safest way of moistening is by partially dipping the pans or pots in warm water, damping from the surface, no matter how carefully it is done, being apt to dislodge and spoil the seed. Plants raised early from seed may be grown to a serviceable size before bedding-out time arrives.

Bedding Lobelias.—The bulk of these are nowadays raised from seed, the leading seedsmen being in a position to supply superior and

reliable strains. The seed ought to be sown at once, and being very small must be treated much as advised in the case of Tuberous Begonias. In this instance the seed is much cheaper, comparatively large packets being distributed, and as a consequence it is often sown far too thickly, the result being wholesale damping off. Large square pans are very serviceable for raising seedlings generally, as these can be set closely together, and also more readily covered with squares of glass. If there is a good stock of old plants of any good variety these must be kept out of a dry heat, or they will run to flower quickly, a moderately warm greenhouse best suiting them. What are wanted are abundance of either sappy shoots, which strike quickly in gentle heat, the tops soon being available for making into cuttings, or the plants may shortly be pulled to pieces, every division being already furnished with roots, always supposing too much fire heat has not been given, these divisions furnishing cuttings, and in time develop into extra fine plants.

Verbenas.—Seedlings of these are of somewhat irregular growth, and are principally used in mixed beds. The seed sometimes germinates slowly, and for this and other reasons may well be sown now. It ought to be very lightly covered with fine soil, and being duly plunged in a brisk hotbed covered with glass, well darkened, and the soil kept uniformly moist, every sound seed ought to germinate in less than a month. The seedlings being grown on quickly in pans or boxes of good soil, all may be propagated from prior to placing in cooler quarters. Insect-infested much-starved Verbena cuttings never develop into good plants. Those taken from clean healthy plants growing in a moderately warm house or pit, on the contrary, strike quickly and grow strongly.

Antirrhinums and Pentstemons.—Early raised seedlings kept growing without any serious check will flower strongly in the open borders the same season, young plants usually producing extra fine spikes. Beds of either in separate colours, or in mixture, are very effective, and are a good change. Both should be sown in pans and not very thickly. The seed of the first named is somewhat small, and must either be sown on the surface or only very slightly covered. The Pentstemon seed being rather larger should be pressed into the surface of the soil, and scarcely covered with fine soil. Antirrhinums are most liable to damp off badly in the seed pans, and it is therefore advisable to avoid overhead watering, and also to place the pans on a shelf in a somewhat lower temperature a few days before they are pricked off.

PLANT HOUSES.

Ivoras.—Young plants that were rooted towards the end of August and have been kept slowly growing in a temperature of 60° to 65° may now be placed into 5-inch pots, in a compost of equal quantities of loam, peat, and sand. If practicable plunge the pots in a bottom heat of 75° to 80°, and do not allow the temperature of the house to range lower than 65° at night. Plants to be grown into specimens and in 5-inch pots may have the points taken out of their shoots, and placed into pots 2 inches larger. Give the same treatment as the younger plants, but two-thirds of peat to one of loam may be used. Larger plants must be thoroughly cleaned if they need it, slightly pruned back, and when they start into growth repotted.

Vincas.—Small plants are useful where stoves have to be kept gay throughout the year. A few plants may be started into growth to yield cuttings. For early flowering plants that were rooted last year are useful. These may be pruned well back, the roots partially reduced, the plants started into growth, and allowed to come into flower without pinching.

Clerodendron fallax.—Plants that were grown strong last year and well ripened may be pruned and started into growth in brisk heat. They break freely if they have been cared for during the period of rest, and not kept in a lower temperature than 55°. When they have started into growth the plants may be turned out of their pots and the roots carefully reduced one-third, repotting in loam, leaf mould, one-seventh of manure and sand. They will need careful watering, and if allowed to flower without pinching will produce large heads early in the season. Place young plants of *C. fragrans* into 5-inch pots, and insert cuttings singly in small pots.

Clerodendron Balfourianum.—When the earliest started plant has made growing shoots 2½ to 3 inches long slip off the required number with a sharp knife, and insert them in sandy soil and cover them with a bellglass. If given a good watering and plunged in bottom heat they will soon form roots. Pot them singly; replunge them for a start. These will make splendid plants in 6 and 7-inch pots for training round stake for either stove or conservatory decoration. Another old plant may be introduced into heat as well as a few young ones trained round stakes for the decoration of the side stages of the stove.



NOTES ON BEES.

STRAINING HONEY.

As the honey passes from the presser to a pitcher beneath no time is lost until it is poured into the uppermost sieve of a series of two to four (as may be required), and at last into a net or a muslin

tapered bag suspended by hooks from the iron rim. From this bag it passes into the storing jar, and all within an hour or two from the time the comb was taken from the hive. The more speedily the work is done the greater is the aroma and quality of the honey preserved, being superior to that long exposed and artificially ripened. The longer honey is exposed to the atmosphere the more watery it becomes, with a corresponding loss of flavour and aroma.

RIPENING HONEY.

This is an objectionable term often used, but misunderstood and abused; and when we read about it we are much amused. We are told that in order to ripen the honey in the hive the bees store it at first in the body of the hive, then carry it up at night to the supers, when the heat of the hive expels the excessive vapour. I have omitted inverted commas from the above, as I write from memory only. Let us analyse the statements. Hives that were reputed to do so, increased in weight 10 lbs. daily, and the frames of the standard size ten in number. Each frame (as they are narrow) when sealed holds about 6 lbs. of honey, or rather under that; when unsealed less than 3 lbs. The excess of water is about 1 lb to every 5 lbs., and requires at least five empty but combed frames for one day's work, leaving five frames for brood, pollen, water, and honey for the internal economy of the hive, which cannot leave more than three for brood, not more than space for five days' egg-laying, and in many cases considerably less, and yet there is no secret about the number of eggs laid by the queen. I wonder how the authors of these statements can reconcile them. I have given the figures and statements as wide an allowance as possible to assist a reconciliation, but fail to see how it can be done. The fact is, a hive likely to gather 10 lbs. honey daily requires all the ten-frame space for the internal economy of the hive irrespective of placing honey temporarily therein in half of the frames.

How, then, is the surplus water extracted from the honey? From the moment the bee begins to sip the honey from the flower it expels the water as it desires; its formation enables it to do so. Stand so that the bee is between you and the sun when it is sipping honey or syrup, and you will soon see the water being discharged, while the honey is retained, is carried home, and stored directly in the upper chambers, not a drop being placed beneath. As the bee regurgitates the honey into the cell, packing it closely to expel all air, the surplus water not previously expelled for the purpose of enabling the bee to perform its work rapidly, rises to the top, and is sipped off by the bees. If Heather or other thick honey required to have the water it contained removed while in the body of the hive, it would take the bees two or three days to carry up what they gathered in one day.

Frequently I have had swarms placed into empty hives at the Heather, and in less than twenty-four hours sealed combs of the finest quality, as such always is, by what other process than I have described could the bees extract the surplus water? The steam we see issuing from the entrances to the hives, and the water or condensed steam upon the landing boards when bees have been getting honey, is expelled in the same way. It is simply absurd to say it is the heat of the hive that expels the surplus water; it is the mechanical process of the bee combined with the law of the lightest matter coming to the top, not unlike the superfluous vanity and airs of foolish people, which for a time appear prominent.

BEEES FOR PROFIT—IN THE HEATHER DISTRICT.

"Will 'A Lanarkshire Bee-keeper,' who has had much experience and been very successful with bees at the Heather, kindly inform me how I should manage my bees? They unfortunately are in a poor district for Clover, having only about as much as will keep them alive till the Heather is in bloom, of which there is abundance, and upon which I depend for my surplus. My bees are pure Carniolians. I have swarms in May, and I use the Lanarkshire tiering hive. Would not the swarming system be the most profitable course to pursue?—W. H. B. K."

"W. H. B. K." appears to be in a favoured district for Heather,

as well as a favoured spot for bees in spring, as his May swarms prove, which is the time to have swarms so that all may be in the best condition to take advantage of the Heather, which can scarcely fail, unless the months of June and July be extremely unpropitious. In order to have all in the best of order, the queens of the first swarms should be deposed and a young but fertilised one introduced. If possible select all such queens intended for stock purposes from a full strength hive. Although I differ in some respects from "A Hallamshire Bee-keeper," I never knew a full strength hive that changed its queen without swarming other than a profitable one. It must be observed that by cultivating the swarming system two-thirds more hives than there are stocks must be kept in readiness. This may be considered extra outlay, but then excessive numbers of hives during winter are unnecessary, and is undoubtedly making and taking most from a few. I will throughout the season give some practical hints on preparing and taking bees to the Heather. Meanwhile be sure you have your hives constructed properly for their removal and manipulation. I can prepare any hive I have for the journey in a few seconds if the supers are on, and in not more than five minutes if not.

ARTIFICIAL HEAT.

If I remember aright it was the Rev. Mr. Taylor that recommended artificial heat to advance bees in spring by plunging the hives into a hotbed or wrapping them with hay bands. The above appeared in the *Cottage Gardener* more than thirty years ago, and subsequently in the little manual, "Bee-keeping for the Many." Fifteen years ago I wrote an article describing how to heat and manage bees by the aid of hot water, having for long before that time employed hot water as an agent in pushing bees forward. From my instructions several apiaries were constructed on the hot-water principle. One of these was at Greenock, whose owner considered it a great advantage; but so far as my experience went there was in the end more loss than profit, and I would caution the beginner against it, more so as it has appeared in a contemporary under the heading of "A New Departure," although in reality an old thing revived, is likely to cause a sensation for a time, after a good sum has been lost on the experiment. The same journal, too, recommends peameal inside the hive, not unlike what I have taught and practised for nearly forty years.

BEE FLOWERS.

There is an unusually fine display of Snowdrops in many places, but mark the difference with Aconites. I have only two blooms instead of hundreds. Who can explain the cause? Is it owing to the weather last year?

PORCH ARRANGEMENT.

"Permit me, through the medium of your Journal, to thank your correspondent, 'Lanarkshire Bee-keeper,' for his answers respecting the Lanarkshire hive. I would further be obliged by his informing me how the various parts of the porch arrangement is attached to the hive? How is the zinc fastened to the top of the stand, so as the slide will work smoothly? Is the inner lid of the hiving box made of laths, or is it a solid piece of wood, and are the strings attached to the ends of the lid?—J. D. L., *Northumberland*."

Porch arrangements are various. After the porch is made to fit accurately the front of the hive I attach it by a pair of butt hinges, substituting a brass pin for the iron one of the hinge. By taking out the pin the porch is easily removed when wanted. Many porches are made by far too low, marring the bees when entering the hive. They should not be less than 7 or 8 inches, and to come right over the alighting board. This is of far more benefit than any top covering. The breadth should not be less than 4 inches

ZINC FOR HIVING BOX.

In the "Lanarkshire" storifying hive it is better when using the hiving box to separate the hive from the stand. In the others the zinc with its frame and shutter is in one piece, which slides out

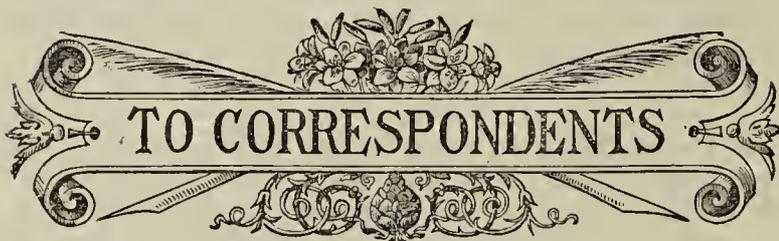
or in as wanted, and the living box is made so as to take its place. I am not sure if I understand properly which hiving box is meant. If the one referred to above the lid is of three pieces pivoted at the ends, and about half an inch from the edge; these are attached to a frame with staples, and a wire keeps them closed until admitting the bees to the hive. If the upper hiving box the lid must be of the lightest material, cleated and close. It is to this one that strings are attached, so as to prevent bees being crushed. If a joint or two are left open for carbolised paper to pass between, a few minutes suffices to cause the bees to retreat to the hive proper.

—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

William Strike, 62, High Street, Stockton-on-Tees.—*Catalogue of Vegetable and Flower Seeds, 1890.*

John Watkins, Pomona Farm, Witherington, Hereford.—*Descriptive Catalogue of Seed Potatoes.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

United Horticultural Benefit and Provident Society (*J. E. P.*).

—Mr. W. Collins, 9, Martindale Road, Balham, London, S.W., is the address of the Secretary of this Institution, and it would perhaps be advisable for gardeners as a body to copy it for subsequent reference.

Palms for a Table (*J. G.*).—The following are graceful Palms adapted for the purpose you name:—*Cocos Weddelliana*, *Geonoma gracilis*, *Thrinax elegans*, *Phoenix rupicola*, *Kentia australis*, *K. Belmoreana*, *K. Fosteriana*, and *Phoenix tenuis*.

Netting for Fruit Bushes (*H. S.*).—The method you propose is safe and good. It has often been recommended in the *Journal of Horticulture*, the last occasion not being very long ago. No injury will occur from the contingencies you mention, but it is advisable to have the sides of the enclosure moveable for the admission of birds after the fruit is gathered, and so long as they do not attack the buds. We know of many such wired enclosures as you propose erecting, and they answer their purpose well.

Dendrobium nobile not Flowering (*W. R.*).—Growths in place of flowers is a consequence of the imperfect ripening of the pseudobulbs, the plants being kept at too great a distance from the glass, and not having sufficient light with a reduction of moisture so as to harden them. As the growths reach maturity withhold the supply of water, removing the plants into a cooler and drier atmosphere, with full exposure to light and sun, in order to thoroughly ripen them. Water should only be given during the resting period to prevent shrivelling. A temperature of 50° artificially is suitable during the resting period. All that is wanted to restore their floriferousness is to secure a good growth and ripen it thoroughly.

Hard and Soft Putty (*M. T.*).—A little white lead mixed with putty will make it set hard in a few days; but gardeners never allow the use of that old kind of putty in these days, because once it gets dry they can hardly cut it when repairs or alterations are to be made afterwards. We have seen a good glazier break four squares of glass trying to mend one broken one, besides spending an hour and a half at the job, which a mere lad could do in five minutes, and without any breakage, if proper putty had been used in the first instance. Hothouse putty is made with whiting pounded down and sifted very fine, and boiled linseed oil, making it into dough as the bakers do their bread; the more the dough of putty is worked the better it will be, and it should be at least ten days old before it is used; in that time a large lump of it will "sweat"—that is, slightly ferment, which is necessary to give it the

proper adhesive power. When this soft putty, as it is called, is allowed to dry thoroughly before it is painted over, it will last as long as the hardest white-lead putty, and at the end of twenty years be soft enough to be cut away with a knife. If, therefore, you wished to remove your greenhouse at any future time, you could easily take out the glass, pack it in boxes, and the timber work could then be handed and packed without the risk or annoyance of breaking the glass.

Pruning Apple Trees (*Golden Spire*).—If you do not read more carefully than you write you will be certain to overlook what is printed for information. You say, "We planted trees in November, 1889, and now in February, 1890, they appear to have been cut back before we got them from the nursery; they appear to have plenty of shoots on for forming a tree." This is a very curious sentence. If the shoots appear at the present time as cut back before they left the nursery, surely they must have been shortened when they were received from there in November, 1889, and in that case they have not had time to make "plenty of shoots for forming a tree." If you can enable us to understand what you wish us to know, and make clear the actual condition of the trees, we will readily advise you how to proceed. You say you have "Writes" Essay. If you will refer to it again perhaps it may be "Wright's;" and, if so, you will find, on page 79 onwards, that when sufficient branches have formed for the framework of a tree the less they are shortened the better for the production of the greatest number of fruit buds, and an illustration is given on page 81 of the effect of the simple method of pruning described; also on page 18 you will see half of a bush tree as it should be pruned, and the other half showing the crop of fruit that follows in favourable seasons.

Fruit Trees on Walls (*T. S. R.*).—As your letter suggests the wall contains fissures in the joints, by all means unfasten the trees and have the masonry well pointed. If it is a stone wall you may wash it with lime toned to a darkish tint with soot. This may be done as soon as convenient after the leaves fall, and the trees can be pruned and secured to the wall as soon as the mortar is set, or before growth commences in the spring. It is not necessary to remove the branches every year, though the fewer and narrower the shreds are the better, and care must be taken that no ligatures are allowed to bind too tightly round the branches. Some gardeners unloose Peach, Nectarine, and Apricot trees in the autumn, and prune and secure them to the walls in spring, as by this means the swelling of the buds is sometimes a little retarded. Trees and walls may be advantageously syringed in winter with a solution of soft soap into which a quarter of a pint of petroleum is well mixed with each three or four gallons. This should be done before the buds swell in spring. Earwigs can be caught with flower pots containing moss or hay, or with hollow stems of beans, or any others of the same nature.

Vines and Frost—Cropping (*M. B.*).—We do not know how many degrees of frost Vines will endure without injury. Very much, we apprehend, would depend on the maturation of the wood. We have not known Vines on walls in the open air in the south of England to be injured by frost even when the mercury in the thermometer has almost fallen to zero. If there is nothing in a vinery besides Vines, and the wood of these is well ripened in the autumn, they will not be injured by frost in winter if no fire heat is employed; but we have known something else to be injured under the circumstances—namely, the pipes that are provided for heating, for if these are filled with water and this is permitted to freeze, bursting and dislocation often follow. The weight of fruit that Vines are capable of bearing depends entirely on their condition. We have seen some Vines more overloaded with a pound of fruit to every lineal foot of rod than others were with twice the weight of fruit. If each of your rods produce 18 lbs. of good well-finished Grapes you will not have much cause for complaint. The Grapes may hang on the Vines till after the leaves fall, provided the atmosphere of the house is favourable for the keeping of the fruit.

Propagating Hardy Ferns from Spores (*T. H.*).—Choose a pot which a bellglass will just fit within the rim, place a large crock over the hole, half fill the pot with smaller pieces, and on them place half an inch of moss; then fill the pot to the rim with the following mixture—viz., sandstone broken in all sizes from that of a grain to a hazel nut, sandy fibrous peat and yellow fibrous loam, of each equal parts, adding to the whole one-sixth of silver sand. Put over the surface a very small quantity of sifted soil, and make it firm by pressing it with the hand. Put on the bellglass, and if it fits closely on the soil it is all right. Remove it, and stand the pot in a pan in a rather shady but not dark part of the greenhouse, for what is wanted is a diffused though not a strong light. Give a good watering all over the surface through a fine-rosed watering pot, filling the pan with water. Now take the frond with the spore cases open, and, holding it over the pot, rub it with the hand on the under side, and a kind of brown or yellow dust will fall on the soil. You may scrape the spore cases from the back of the fronds, but if the dust fall so as to make the soil brown or yellow it is enough. Press the surface gently with the hand and put on the bellglass, taking care that it touch the surface all round. Keep the pan or saucer full of water, and give none on the surface except it become dry, which it never ought to do, nor will it if sufficiently shaded and the saucer be kept full of water. When the surface becomes green tilt the bellglass a little on one side at night, and as the soil becomes greener tilt it higher, giving a gentle watering now and then to keep the surface from becoming dry. When the plants have made two or three fronds gradually remove the bellglass, and pot off the Ferns when they can be handled safely. The pots may be placed in a pit or a shaded position in a greenhouse.

Potatoes in Pots (V. S.).—An excellent cultivator who successfully grows early Potatoes in pots, says:—"Ten-inch pots are the best, a hundred of these will give many dishes of fine early Potatoes, and when properly managed there is no risk with them. A crop may be relied on at all times with no more trouble nor expense than was required with the beds and frames. A quantity of roughish loamy soil should be collected, and a little decayed manure mixed with it. Each pot must have a little rough drainage placed at the bottom, and afterwards be half filled with the prepared soil. This should be made level and firm, and the sets can then be placed on it. Two, three, or four sets may be placed in each, keeping them as far apart as possible, and afterwards covering to the depth of 2 inches or more with the soil. A cool house or frame protected from frost are suitable places for the pots at first, as with a little water the sets will soon produce growths above the soil; and the cooler and nearer the glass the plants are kept at this period the more robust will they remain, and this is a great point gained. Later on they are placed in early vineries or Peach houses, and there the tubers form plentifully and swell quickly. As the weather becomes warmer, about the end of March and the beginning of April, they may be placed in frames with the lights over them. Where there is no room to grow many a few dishes may be had from one or two dozen pots, and when they are turned out we feel sure all will be satisfied with this easy and certain mode of securing Potatoes."

Culture of Oranges for Fruiting at Christmas (Excelsior).—The chief points that need attention are keeping the plants clean and not placing them in too large pots. The Orange, during the growing season, delights in an abundance of heat, light, and water; secondly, it must be kept clean; and, thirdly, it should have a periodical rest. Of the first three essentials light is the most important. A deficiency of this is the source of more failures than is supposed, and too frequently the cause of failure is wrongly attributed to improper soil, too much or too little water, imperfect drainage, &c., although such may occasionally be the case. If we add to the first cause of failure an arid and sulphurous atmosphere, such as may be generated by flues and fireplaces underneath the structure, then ruin is the consequence. Light being a most important factor, let the trees be placed in such a position that the rays strike directly upon the upper surface of the leaves and all around the plant. Do not put them in the customary "shady corner," or the leaves are sure to fall prematurely; further, do not shade them from the sun unless they are either very sickly or in great danger of being scorched or burned, which is not likely to occur unless the glass is of inferior quality. Water ranks next in importance, as if the soil is tolerably open in character abundant supplies will be required from April to October, after which time it must be applied with a more sparing hand, the soil being allowed to become dry, but not dust dry, before it is applied. If drought is carried to extremes during the winter months the trees cast their leaves prematurely, thus weakening the trees considerably. The Orange being an evergreen, leaves should remain on the trees at least two seasons. In one of the most noted gardens in the kingdom this drying-off process was at one time carried so much to the extreme that when the plants were placed in their growing quarters in the month of April they resembled deciduous trees, and the flowers were consequently very scanty and fruits few.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (H. C.)—The Apple is one of the Calvilles, the fruits of which vary in colour according to soils and positions. The specimens bear a general resemblance to the Calville St. Sauveur, the fruits of which often keep till spring. Possibly it may be a local seedling, which would account for the variation from the original.

Names of Plants.—We only undertake to name species of plants; not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes, slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. —(G. M.)—*Bryophyllum calycinum*. (G. T.)—1, *Cypripedium Spicerianum*; 2, *Cymidium eburneum*; 3, *Cattleya Trianae*. (R. O.)—1, *Cyclamen Coum*; 2, *Iris reticulata*; 3, *Azalea obtusa*. (W. G. S.)—2, *Adiantum pedatum*; 4, *Asplenium Adiantum nigrum*; 5, *Nephrolepis tuberosa*; 6, *Acacia Farnesiana*. The two Ferns (Nos. 1 and 3) cannot be recognised without spores. (F. M.)—The specimen was not in the best condition, but it appears to be a small flower of *Mackaya bella*. The plant will succeed best in an intermediate house, a cool stove, or a warm greenhouse, but not in an ordinary greenhouse. It can be grown in a pot or planted out, the soil consisting of turfy loam, with sand and a little peat or leaf soil. When the plant is growing weak liquid manure will be beneficial. (W. J.)—No numbers were attached to the specimens, so we can only give the names with the chance that you may recognise the plants to which they belong. *Cyrtomium falcatum*, bright shining green fronds; *Nephrolepis tuberosa*, frond with short sessile pinnæ; *Pteris serrulata*, frond with long narrow pinnæ.

COVENT GARDEN MARKET.—FEBRUARY 19TH.

		s. d.		s. d.	
Apples, ½ sieve	2	0	to	6	0
" Nova Scotia and Canada, per barrel	18	0	25	0	0
Cherries, ½ sieve	0	0	0	0	0
Grapes, per lb.	2	0	5	0	0
Lemons, case	10	0	15	0	0
Oranges, per 100	4	0	to	9	0
Peaches, dozen	0	0	0	0	0
Plums, ½ sieve	0	0	0	0	0
Red Currants, per ½ sieve	0	0	0	0	0
Black	0	0	0	0	0
St. Michael Pines, each..	2	0	6	0	0

VEGETABLES.

		s. d.		s. d.	
Artichokes, dozen	0	0	to	0	0
Asparagus, bundle	6	0	8	0	0
Beans, Kidney, per lb. .. .	1	6	2	0	0
Beet, Red, dozen	1	0	2	9	0
Broccoli, bundle	0	0	0	0	0
Brussels Sprouts, ½ sieve	1	6	2	0	0
Cabbage, dozen	1	6	0	0	0
Capiscum, per 100	0	0	0	0	0
Carrots, bunch	0	4	0	0	0
Cauliflowers, dozen	2	0	4	0	0
Celery, bundle	1	0	1	3	0
Coleworts, doz. bunches	2	0	4	0	0
Cucumbers, doz.	6	0	9	0	0
Endive, dozen	1	0	0	0	0
Herbs, bunch	0	2	0	0	0
Leeks, bunch	0	2	to	0	0
Lettuce, dozen	0	9	1	3	0
Mushrooms, punnet	1	6	2	0	0
Mustard & Cress, punnet	0	2	0	0	0
Onions, bushel	3	0	4	0	0
Parsley, dozen bunches	2	0	3	0	0
Parsnips, dozen	1	0	0	0	0
Potatoes, per cwt.	3	0	4	0	0
Rhubarb, bundle	0	2	0	0	0
Salsify, bundle	1	0	1	6	0
Scorzonera, bundle	1	6	0	0	0
Shallots, per lb.	0	3	0	0	0
Spinach, bushel	1	0	2	0	0
Tomatoes, per lb.	0	6	1	0	0
Turnips, bunch	0	4	0	0	0

CUT FLOWERS.

		s. d.		s. d.	
Arum Lilies, 12 blooms .. .	3	0	to	5	0
Azalea, dozen sprays	0	6	1	0	0
Bouvardias, bunch	0	6	1	0	0
Camellias, dozen blooms	1	0	4	0	0
Carnations, 12 blooms .. .	1	0	2	0	0
Christmas Roses, 12 blms.	0	0	0	0	0
Chrysanthemums, dozen bunches	4	0	9	0	0
Daffodils, dozen blooms .. .	0	6	1	6	0
Deutzia, per bunch	0	6	0	9	0
Epiphyllums, doz. blooms	0	6	0	9	0
Eucharis, dozen	3	0	4	0	0
Gardenias, 12 blooms	12	0	24	0	0
Gladiolus (various) dozen sprays	0	0	0	0	0
Hyacinths (Roman) dozen sprays	0	6	1	0	0
Lapageria, 12 blooms	2	0	4	0	0
Lilium, various, 12 blms.	2	0	4	0	0
Lilium longiflorum, 12 blooms	9	0	12	0	0
Lily of the Valley, dozen sprays	0	6	1	0	0
Marguerites, 12 bunches	2	0	6	0	0
Maidenhair Fern, dozen bunches	4	0	to	9	0
Mignonette, 12 bunches .. .	2	0	4	0	0
" Fr., large bnch	1	6	2	0	0
Narcissus (Paper-white), dozen sprays	0	9	1	0	0
" French, 12 bnchs	1	0	3	0	0
Pelargoniums, 12 trusses	1	0	1	6	0
" scarlet, 12 bnchs	6	0	12	0	0
Primula (double) 12 sprays	1	0	1	6	0
" (single) 12 sprays	0	6	1	0	0
Roses (indoor), dozen .. .	1	6	3	0	0
" Red	0	0	0	0	0
" 12 blooms	6	0	9	0	0
" Tea, white, dozen .. .	1	0	3	0	0
" Yellow	2	0	4	0	0
" French, per bunch	2	0	6	0	0
Spiræa, dozen bunches .. .	9	0	12	0	0
Stephanotis, dozen sprays	0	0	0	0	0
Tuberose, 12 blooms	1	6	2	0	0
Violets, dozen bunches .. .	1	0	2	0	0
" French, per bunch	1	0	2	0	0
" Parme, per bunch	3	0	4	0	0
White Lilac, Fr., per bnch	4	0	6	0	0

PLANTS IN POTS.

		s. d.		s. d.	
Aralia Sieboldi, dozen .. .	6	0	to	12	0
Arum Lilies, per dozen .. .	12	0	18	0	0
Arbor Vita (golden) doz.	6	0	4	0	0
Azalea, various, per dozen	18	0	30	0	0
Balsams, per dozen	0	0	0	0	0
Caladiums, per dozen .. .	0	0	0	0	0
Christmas Rose	0	0	0	0	0
Cyclamen, per dozen	9	0	18	0	0
Deutzia, 12 pots	8	0	12	0	0
Dracæna terminalis, doz.	24	0	42	0	0
" viridis, dozen	13	0	24	0	0
Epiphyllum, per dozen .. .	13	0	24	0	0
Erica, various, dozen	12	0	18	0	0
Euonymus, var., dozen .. .	6	0	18	0	0
Evergreens, in var., dozen	6	0	24	0	0
Ferns, in variety, dozen .. .	4	0	18	0	0
Ficus elastica, each. .. .	1	6	to	7	0
Foliage plants, var., each	2	0	10	0	0
Hyacinths, 12 pots	6	0	9	0	0
Lily of the Valley, 12 pots	18	0	30	0	0
Marguerite Daisy, dozen	6	0	12	0	0
Mignonette, per dozen .. .	0	0	0	0	0
Musk, per dozen	0	0	0	0	0
Myrtles, dozen	6	0	12	0	0
Palms, in var., each	2	6	11	0	0
Primula (single), per doz.	4	0	6	0	0
Rhodanthe, per dozen .. .	0	0	0	0	0
Roses (Fairy), per dozen	11	0	12	0	0
Saxifraga pyramidalis, per dozen	0	0	0	0	0
Solanums, per dozen	6	0	12	0	0
Tulips, 12 pots	8	0	10	0	0



VERMIN.

AN outcry about a plague of rats in Suffolk and certain other counties has led to much newspaper correspondence as to the reason why such vast numbers of this mischievous rodent have made their appearance in particular localities, and it has been insisted upon with persistent vehemence by certain writers that the whole and sole cause is excessive game preservation. Others deny that it is, and among them is a certain worthy farmer and land agent who cites, by way of example, his own case, where some 600 rats were destroyed recently, when a barn head was cleared of some old beans, which had remained there unthrashed since the harvest of 1888. He denies that game preservation is the cause, as it is not carried to an excess in the neighbourhood of his farm, and yet, strange to say, he does not appear to see that rat preservation is the cause.

What else can we call it when such ample provision of food and

shelter is made for them, and they are not only left undisturbed for more than twelve months, but no attempt appears to have been made to destroy them by poison? Yet their presence among the Beans in considerable numbers must have been palpable enough. If instead of rat preservation we take the more comprehensive and forcible term of slovenly farming, we shall have given the precise cause of the evil, and the remedy will be equally apparent. While walking over one of our off-hand farms last spring our attention was called to a beaten track made by rats across a field sown with spring corn to a stream, where they evidently came regularly in considerable numbers for water. The pasture on the other side of the stream rendered it more difficult to detect any track thence to the homestead, but we had lamentable evidence that the rats did cross the stream in our heavy losses from the broods of spring chickens. Now these rats came from some corn stacks on a neighbouring farm, so that our own pains in having rats kept under was thus rendered practically useless by the carelessness of a neighbour. Unfortunately he holds several thousand acres of land. He always keeps several old corn stacks unthrashed far into the new year, and we invariably see them so standing honeycombed by rats, with the earth burrowed around the foot of the stacks, and numerous holes made through the thatch. The case is undoubtedly a remarkable one, but actual observation for several years enables us to vouch for the accuracy of our statement, and to show how the careless suicidal habits of a single farmer may prove a curse to an entire district, and not merely a single parish, for his land runs consecutively through three or four parishes. It is notorious that rats are migratory, and with such a nursery for them can it be wondered at if they spread far and wide in ever increasing numbers?

If only every farmer would destroy rats systematically there would be no difficulty about keeping them under, and there can be no better time than this month and the next for the judicious use of poison for this purpose, so as to destroy as many old rats as possible before the spring litters make their appearance. The best way of doing this is to mix one part of meal with half a part of finely powdered loaf sugar, and one-eighth part of arsenic. Place the sweetened meal without the arsenic in the holes for two or three nights, and then use the poisoned meal. By this plan a clean sweep is made for the time of every rat on the farm, and mice may be kept down by placing the poisoned meal in the lofts and other places, where it is well out of reach of farm animals. For a small homestead a few slices of bread and fat, such as dripping or lard, covered with a thin coat of phosphorus paste placed near their haunts and well out of the way of other animals is an inexpensive and sure destroyer of both these pests. A regular old-fashioned rat hunt may be very good fun, but it generally involves much opening of drains, destruction of woodwork, and general damage, that we altogether prefer the poison as a preventive.

That prevention is better than cure certainly holds good in reference to vermin, for then we avoid the loss involved by their ravages. If the last sentence seems a mere platitude, why then, we ask, do farmers allow rats to become rampant? Why do they compare notes as to the number of bushels of Wheat per acre eaten by sparrows as the corn ripens, and yet suffer the "cloud" of sparrows which haunts every homestead in winter to remain unmolested? If the recent statement of a North Essex farmer in *Bells' Weekly Messenger* that sparrows destroy 8 bushels an acre of Wheat and Barley be true the loss is more serious than we supposed, for it amounts to a sum that would more than cover rent, tithes, and taxes.

WORK ON THE HOME FARM.

Management always tells, and never more so than in such a winter as the present one, when manure carting has been so much retarded by wet weather, and late ploughing of heavy land has spoilt it for Barley sowing. Repeatedly have we advised caution about ploughing such land when sodden with moisture, but then to those men who are always in arrears with their work advice of any sort is useless. With root land ridged in autumn we are now able to take full advantage of the drying

of the surface by the east wind and bright weather, to cart manure direct from the yards into the furrows, to spread it at once, and then split the ridges back over it with the double-breasted plough. There it is so left ready for the Mangold sowing in April, when manure carting would prove a serious hindrance to work generally. This advantage is a result of timely autumn culture, of a settlement of the next year's cropping at Michaelmas, and not waiting till spring before our plans for the year are matured.

To those who are in difficulties about heavy land Barley sowing we say, Don't sow Barley at all, but rather sow the best sample of Oats, either white or black. If the land is poor drill a full quantity of chemical manure with the corn, according to the formula we gave recently, and you will certainly have a profitable crop of corn, much more so than you would have by again trying to grow Barley on such land. Do not be bound by custom in a matter of such vital importance, but just consider the present price of English Oats, now 19s. to 26s. per quarter, compared with foreign Oats at 17s. to 22s. per quarter. Under high cultivation ten quarters per acre may be had of this crop. Can you do better with Barley? Can you do so well? And remember that Oats do not suffer from discolouration, that the straw is most nutritious for fodder, and that the crop is altogether less speculative in character than any other corn. Corn merchants turn to account the wretched light samples of foreign corn by offering "fine old English Oats" at special prices, just as a wine merchant puffs his fine old port. Winter corn generally is a full strong plant, but we hear of a few fields which have lost plants, and where this is the case we always drill Oats, such mixed corn always being turned to account for home consumption.

ENSILAGE.

ACTING on hints in your "Home Farm" columns, I ensilaged 7 acres of aftermath last autumn. The grass was stacked and bricks used for weight. The stack is now being cut, and has turned out in fine condition, so much so that it should stand a fair chance of a prize at any show. Could you please tell me whether there will be competitions at Smithfield or elsewhere during the next few weeks? My cows have taken to it at once.—A. W. G.

[If prizes are given for silage at the Horse Show, which opens at the Agricultural Hall, Islington, on March 4th, we fear you will find the list of entries is closed. Write to the Secretary, J. Herbert Taylor, 5, Great George Street, Westminster, S.W. You might also be able to compete at the Shorthorn Show at Bingley Hall, Birmingham, on March 5th, of which J. B. Lythall is Secretary; or at the Herefordshire Horse Show, at Hereford, on March 12th. The Secretary is W. T. Williams, 6, St. John Street, Hereford. But you would probably do better to hold some in reserve for the Spring Dairy Show, which will probably be held in London. Of this we are not certain, but a dairy show is clearly the best place for a silage competition. You are to be congratulated upon your enterprise and success in thus turning autumn herbage to account for a supply of prime winter food. The value of such an addition to our ordinary supplies of winter food for catt'c is perhaps not so apparent just now, while hay is so cheap and roots so abundant; but it is nevertheless self-evident that such sound, wholesome, nutritious food, which can be had by most farmers at a nominal cost for collection and storage, and upon which no special outlay is required for cultivation, must come into general use. Ensilage is of especial value for your district, for Wales, for Ireland, and for every locality with a high average rainfall. In outlying districts, both in Ireland and Scotland, haymaking of a most primitive description may still be met with, much hay being spoilt, and much labour wasted, all which might be avoided by the substitution of ensilage for haymaking, and the exhibition of samples of well-made silage, everywhere and upon every opportunity, is so desirable that your desire to assist in so good a cause is highly commendable.]

METEOROLOGICAL OBSERVATIONS.

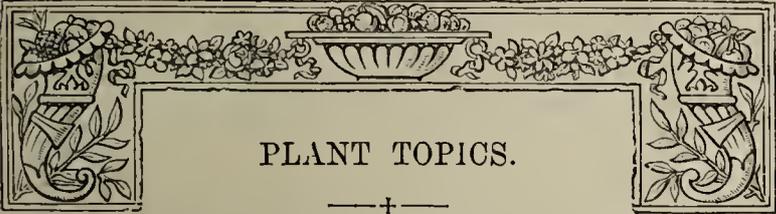
CAMDEN SQUARE, LONDON.

Lat. 51° 33' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Baromet. at 32" and Sea Level.	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890. February.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday	9	30.242	37.3	34.8	N.E.	37.8	40.1	33.7	70.1	27.9	—
Monday	10	30.504	31.9	31.2	N.E.	37.2	42.3	30.2	59.9	24.0	—
Tuesday	11	30.306	31.0	20.6	E.	36.5	41.9	23.8	69.5	23.2	—
Wednesday ..	12	30.014	31.8	30.4	E.	36.1	39.0	29.6	69.3	24.1	—
Thursday	13	29.721	32.3	31.5	E.	35.9	39.1	28.1	58.2	21.8	0.010
Friday	14	29.552	37.3	35.9	N.	35.7	41.2	32.2	55.9	28.1	0.659
Saturday	15	29.523	34.1	34.1	N.E.	36.1	40.0	32.7	43.2	32.1	0.235
		29.995	33.7	32.8		36.5	49.5	30.3	59.5	25.9	0.955

REMARKS.

9th.—Fine, with occasional sun-shine.
10th.—Sun shining through haze all day.
11th.—Bright and cold.
12th.—Bright and cold.
13th.—Sun shining through haze in morning; bright afternoon.
14th.—Cloudy morning; dull, with occasional slight drizzle in afternoon.
15th.—Wet snow early, (covering the ground about an inch deep by 9 A.M.) turning to rain about 10 A.M. and lasting all day.
Early part of week very bright and fine, latter part snowy and wet.—G. J. SYMONS.



PLANT TOPICS.

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REMARKABLE plants have received a large share of attention lately, both in the horticultural and daily press; writers in some of the leading metropolitan organs devoting exhaustive, poetical, and imaginary articles to subjects that have been brought into prominent notice for some peculiar character. Few plants can claim the honour of having a whole scientific report devoted to them, yet this has been accorded to "the Weather Plant," concerning which notices have appeared in numberless papers, both here and on the continent. As *Abrus precatorius* this plant had long been a familiar occupant of botanic gardens, and its brilliant red black-tipped seeds are frequently seen in museums, either preserved as curiosities or employed in ornamental articles of native manufacture. An observer on the continent some time since, however, detected certain movements of the leaves that appeared to be connected with meteorological disturbances or changes, and the attention of scientific men was especially directed to it. An important ultimate result of this was the institution at Kew of a series of experiments, intended to test the reliability of the *Abrus* as a natural meteorologist and prognosticator of the weather. It must here be noted that the plant is a native of the West Indies, and though it succeeds in other tropical countries it was a severe test to expect it to act as a faithful indicator of the varying weather conditions of this climate. Possibly this may have disturbed the sensitive constitution of the plant sufficiently to account for the erratic nature of the record obtained, for though it was satisfactorily proved that the weather influences the movement of the leaves to a certain extent, yet it does not appear that any definite rules can be laid down as to its behaviour. The prognostications of the meteorological office have frequently been the subject of satirical comments, but those of the *Abrus* are certainly less reliable, as far as can be judged from the admirable report so carefully prepared by Mr. Francis Oliver.

The responsive action of plants, more particularly the leaves and flowers, to changes in the weather is not peculiar to one or two members of the vegetable kingdom, it is shared in some degree by a large number. Some of our most common wild plants are influenced considerably by light, heat, damp, and cold in the movements of their leaves. What is termed "the sleep of plants" is merely an effect due to the withdrawal of light or heat. Many observers have called attention to this, and to the varying mode in which the leaves fold up or are depressed in different species. It is more notable in compound leaves than in simple ones, and the position assumed by the leaflets in the Trefoils is familiar to everyone, each one folding on itself, and then the three draw up to the axis, being nearly upright. In species of *Oxalis* with similarly formed leaves, the leaflets droop downwards round the stalk. In pinnate leaves the pinnæ are often depressed below the stalk, the under surfaces meeting.

Flowers commonly expand in the morning and close in the evening, frequently remaining closed in dull, cold or wet weather. All such movements may therefore be considered as due to meteorological influences, though they have never yet been reduced to a system. It is true that with regard to the times at which flowers expand and close a kind of floral clock has been composed, but the times given for the various flowers can only be taken as approximative, and the divergence of an hour or two rather dis-

turbs the calculation of time by such means. All movements of plants in this way seem to depend upon so many conditions which are difficult to ascertain and cannot be accurately recorded, that it is too much to expect really definite results.

Spontaneous movements of leaves, or those in response to some direct irritation, are more interesting and more regular. They have been subjected to close scientific study in the case of such as the *Dionæa* and *Droseras* with surprising results, the carnivorous plants having enjoyed a notoriety far exceeding the "Weather Plant." Even now they are inquired for by visitors to Kew with somewhat the same impressive interest that the lion house is sought in the Zoological Gardens. The infolding of the leaf lobes in the *Dionæa* when some substance is introduced is familiar to many now, as also is the rapid drooping of the Sensitive Plant leaves when touched. There is, however, an occupant of the stoves in some botanic gardens which displays a still more remarkable phenomenon in its leaves, and which is not nearly so well known. This is the Telegraph Plant, *Desmodium gyrans*, a member of the Leguminosæ, a native of the East Indies, and by no means a novelty. Though Mr. Darwin and others have determined that most plants have a spontaneous motion in their growing stems and roots, these are so extremely gradual that they are not readily observed, and can only be tested by careful experiment. In the *Desmodium*, however, we have a spontaneous movement that is visible and strongly marked. The leaves consist of three leaflets, the centre one large, oblong, or elliptical, and at the base on each side is a small narrow leaflet, which possesses a peculiar property. When the plant is healthy and growing these leaflets rise alternately by a series of little jerks until they are nearly perpendicular, and then descend in a similar way, to resume their action when the other leaflet has gone through a similar process. This takes place without the application of any external stimulant beyond that afforded by light or heat; the rapidity of the movement varies greatly, however, and in dull weather it is much reduced or ceases altogether, as it does when the plant becomes unhealthy or old. Sometimes the motion is confined to a few leaves, but it seems to depend chiefly on the age of the plant, the weather, or the conditions under which it is grown. In cold or a dry house it is much lessened, and does not continue so long.

As regards the benefit plants themselves derive from these movements it is easy to understand that in the case of leaves folding up in dull weather or at night, the radiating surface is decreased. Flowers are also protected by closing in cold or wet weather. The *Dionæa* and others having a similar character are believed to derive nitrogenous support from the flies and other insects they entrap. What advantage, however, can the Sensitive Mimosa or the Telegraph Plant derive from the motion of their leaves? In a wild state we could imagine that the Mimosa is subject to a perpetual succession of alarms, and how can the drooping of its leaves protect or help it? The restless action of the *Desmodium* leaflets might serve as an attraction, but if so it expends a considerable amount of energy in accomplishing what many other plants effect by means of their flowers in a quiet but much more certain manner.

Another plant topic which has been treated rather fully, popularly, and practically in the papers lately is in connection with fragrant Ferns. Mr. W. Sowerby recently called attention to the fact that the fronds of *Drynaria Willdenovi* possess an agreeable haylike fragrance when drying, and immediately the writers were busy in the daily Press extolling its virtues and eularging upon the subject generally. It is rather strange that this quality of the *Drynaria* (or *Polypodium* as it is designated in the "Synopsis Filicum") has not been recorded before, but fragrance is not expected in Ferns, and it is only those who are intimately acquainted with them that would be likely to detect their peculiarities in this respect. Still, there are several Ferns which possess an un-

questionable fragrance in their fronds, surpassing both in quality and degree that of the *Drynaria*. *Lastrea* or *Nephrodium fragrans* (noted on page 175) is one of the most remarkable of these, and it was the first "Fragrant Fern" that I knew. Some years ago an experienced Fern grower in the north of England called my attention to its Violet-like odour, and at the time I thought it was a practical joke, so strong was the fragrance, it seemed scarcely credible a Fern could produce it. Two British Ferns, *Nephrodium æmulum* and *N. montanum*, also possess a marked fragrance in their fronds, the former partaking of the fresh hay character distinguishing the *Drynaria*. Some other Polypodiums have been observed that are entitled to rank with "Fragrant Ferns," such as *P. normale* and *P. phymatodes*, but in few is it so distinct as in *N. fragrans*.

A considerable difference of opinion exists respecting the assistance a gardener can derive from a knowledge of the conditions under which a plant flourishes in its native state. It is contended that under cultivation plants are necessarily treated so artificially that it is practically impossible to reproduce exactly what they are supposed to require. Further, it is maintained that plants are often found growing in places that are not best suited for them, but which they are forced to occupy by being "crowded out" in the "struggle for existence." Much of this is undoubtedly true, but it is also equally the fact that a knowledge of the habitat of a newly introduced plant is a considerable help to a cultivator, and many who have to deal with such could testify to the correctness of this view. It is frequently deplored that collectors furnish too little information on this score, though they could always do so without revealing any trade secrets with regard to the localities where scarce or valuable plants are found. A man may possibly succeed in growing a plant well though he has no knowledge of its native climate or surroundings, but he is much more likely to do so if he be in possession of a few facts. The innumerable failures with Orchids when they were first cultivated were unquestionably due to the fact that the treatment was founded on imperfect knowledge. Modifications have to be introduced in all cultural matters in accordance with the conveniences at command, but a general idea of the plant's requirements is a useful guide in experimental culture.—L. C.

TOMATO DISEASES, CAUSES AND PREVENTION.

THE roots of Tomato plants, under certain conditions, become in some cases almost covered with tuber-like knobs similar to those on the roots of Cucumbers. At one time I regarded this to be the work of an insect, but by careful observation, and noting the conditions under which it has appeared, have been compelled to draw other conclusions. Old soil, or soil that has been used for the same crop, has been carefully avoided, but this did not prove sufficient. Then the use of fresh manure was discontinued, but this it was found was not the cause, although it may be pointed out that fresh manure is the reverse of beneficial to these plants. Where this clubbed appearance of the roots takes place with us the strictest measures were taken to prevent it, but with no avail. The disease appeared in one bed only, two other narrow borders being occupied with Tomatoes in the same house. Tomatoes were also grown in four or five other positions, with no sign of clubbing. Ultimately I came to the conclusion that the disease is mainly, if not wholly, due to a superabundance of bottom heat. I am also of opinion that the clubbing of the roots of Cucumbers is due to the same cause. None of the plants in the various houses had bottom heat, except in this one place where clubbing occurred. The bottom heat pipes were shut off under the two beds, which were formerly used for early Melons and propagating. At the back where the roots clubbed the top heat pipe was shut off, but the heat, backed up from the return and the pipe, was frequently very hot—too hot for the well-being of the plants—and resulted in the disease that has been pointed out.

Place these plants in loose rich soil, or soil in which too much manure has been incorporated, so as to cause a soft sappy growth, and maintain a humid atmosphere for forty-eight hours, and the plants are attacked by *Phytophthora* (*Peronospora*) *infestans*. When the soil is firm and not too rich this fungus will appear if

the temperature is low and the atmosphere becomes saturated, or nearly so, even for a very short time. This is not the only cause, and another may be pointed out. How often are the plants divested of a good portion of their foliage and then given a soaking of water. We have been guilty of this, and know that it is practised by many others. No greater mistake can be made, for it is almost certain to predispose robust plants to this disease. They are attacked in such a short time that the main cause may for a long time be overlooked. After thoroughly watering a house of Tomatoes the atmosphere for a time is often too moist, and if a good per-centage of foliage has been removed it adds to the evil. If the borders in which they are growing have been dry the evil is increased. No fear of an attack from fungus need be anticipated if the temperature of the house is slightly increased for a time after watering, so as to assist in evaporating the superfluous moisture. If the weather is warm and bright, this can be accomplished by ventilating on a more liberal scale, and watering during the early part of the day. The plants should be dressed two or three days previous to watering, or about the same time afterwards. This disease can be prevented by warmth, the atmosphere on the dry side, and judicious ventilation, combined with careful watering, and soil that will promote firm sturdy growth.

When once the disease appears it can be stopped, and must be at once, for it soon communicates itself to healthy plants if the treatment is not changed and a remedy applied at once. It is surprising how quickly the whole tissues of the plant become diseased, and once it reaches this stage all remedies are hopeless, nothing remains but to burn the plants. They never do any good, all new growth becomes diseased just when hopes are entertained of the plant recovering. The moment it shows itself all infested leaves and any portions of the stems should be cut away at once and burnt, and the plants syringed with powdered sulphur and water. For this purpose a 4-inch potful of sulphur will be ample for three or four gallons of water. This will destroy the fungus and save the whole house of plants if other conditions are at once rendered favourable. Neglect for a few days may result in all the plants having to be destroyed.

Another and certain cause of this disease is excessive watering, which is easily remedied by care. It promotes soft growth, bad setting, and in the end disease. If Tomatoes are properly managed they do not require half the water that some think necessary for their well-being. The less they have to be watered, as a rule, the better they succeed. In some positions and under certain conditions during hot dry weather the plants may have to be watered daily to keep them from suffering by drought. Where the conditions of the roots are such that this has to be done to maintain moisture about them, the best interests of the plants are sacrificed. The soil in which they are growing should never be destitute of moisture from the time they are started until the whole of the crop has been gathered. If kept as near an intermediate condition as possible so much the better without recourse to frequently watering them. They do not need much soil in which to grow, and if the surface is thoroughly mulched to prevent evaporation the plants will do all the better, and the roots continue to work freely from first to last. If grown in pots the advantage is on the side of plunging; they require less water, and in consequence afford a heavier crop of fine fruit. The plants that had the least water with us last year were the best, and the same fact was observable under the various conditions under which others were grown.

There is another fungus that attacks these plants, and which is encouraged by a low stagnant atmosphere. Ten days or a fortnight is ample under certain conditions of culture for a whole house to be covered—leaves, stems, and fruit—with a brown mould. This gives to the foliage a dried up appearance, as if they were ripening prematurely. This is bad if allowed to spread unchecked, and will soon ruin the crop. But it is not such a serious disease as the former, that blotches the fruit, leaves, and stems at first as if they had been scorched. Directly this is observed the plants should be thoroughly syringed with the sulphur solution that has been pointed out, and the temperature slightly raised where this is practicable, and it will be destroyed in a few days.

All that is needed to guard against these diseases is a moderately warm rather dry atmosphere. A liberal circulation of air on all favourable occasions promotes firm sturdy growth. This is essential to success. Early Tomatoes, after they commence growing freely, are often kept too warm and too close, and are given twice the quantity of water that they really need.

The soil must be firm and not too rich, the growth of moderate strength—that is, firm and short-jointed. Loose rich soil promotes undue luxuriance. It is possible to have the plants too strong to ensure their setting freely, even if such sappy examples of growth do not fall an early prey to disease. On the other hand

the plants should not be starved, so that they grow only with difficulty and produce three or four puny flowers on each truss.—
WM. BARDNEY.

THE BRUSSELS SPROUT.

THERE is scarcely another vegetable with which we have to do that is of greater importance considered as a kitchen garden crop than this one, and perhaps, with the exception of Peas, no other vegetable has had more time and thought devoted to its improvement within the last few years.

This extra attention has resulted in producing hybrids and varieties in great numbers, all of them claiming to be improvements in one way or the other over the old Brussels Sprout. Novelty and variety have charms which are irresistible to most people, and I am afraid that very few have resisted its influence with this vegetable but have sought for the new and sacrificed the old. All honour to those who are endeavouring to improve this important vegetable, and I hope that success may crown their efforts, but up to now, in my opinion, it has entirely eluded their grasp.

In size of stem and also of the sprout, improvement no doubt has been effected, but I believe at a great sacrifice in other important respects, the chief of which is in quality, weight, and economy.

In determining the relative value, or quality, as between the small, hard, knotty sprout of a few years ago against the loose and large sprout of the present time, apart altogether from my opinion on the subject, let anyone inquire of their cooks which are preferred at table, or of the salesmen which are preferred at market. As regards value or weight from a given quantity of ground I hold that the small sprout has also the advantage.

In planting ground with the Improved or, as they are sometimes called, the Giant Sprout, it is advised that they be planted 3 feet apart, and sound advice too, as the plants will meet even planted at this distance apart before the winter. They have stems and leaves like Castor-oil Plants, and almost as ornamental, but unfortunately these stems and leaves are fit only to be eaten by pigs or cattle. The sprouts are usually large and loose, and when once in the kitchen half the outer leaves are stripped off in being prepared for cooking, and it frequently happens that many of the largest sprouts are diseased in the centre, and therefore useless.

The smaller Brussels Sprout may be planted from 18 inches to 2 feet apart each way, according to the richness or otherwise of the ground, thus giving double the number of plants to the same area, and nothing like the weight of useless leaves and stems, and a much greater weight of serviceable sprouts of far better quality and with scarcely any waste in preparing for cooking.—OWEN THOMAS, *Chatsworth*.

SOME EARLY CROCUSES.

WHILE the large Dutch Crocuses are ever welcome in their season, there are many species of the genus which flower earlier and gladden our eyes with their brightness. True harbingers of spring, heralding its approach, and with it the glowing masses of golden yellow, or the purples and lilacs and whites of their larger congeners. These winter Crocuses begin early in the year, opening their blossoms with the first gleams of sunshine which peer through the gloom of our early January days. Some of these Crocuses appear to have greatly exercised the reporters of some of the daily journals at the recent meeting of the Royal Horticultural Society, and one of these seemed to suspect that the specimens exhibited by a well-known firm had undergone some mysterious operation to induce them to flower at such an early season.

As yet I cannot boast of the possession of a large number of these; but year by year some are added, and others increase in number, so that I look forward hopefully to the possession of large clumps of the winter flowering species. It is fortunate that some of the best of these early Crocuses are moderate in price, so that the amateur who has to study economy, and the gardener who requires to be careful in his expenditure to avoid involving his employer in a heavy bill, need not be without some of these charming little flowers, which peep brightly from the earth when all around is dull and dreary. The present notes have no pretension to being exhaustive of the many species, but are penned with the view of drawing more attention to the claims of some of the cheaper species which may be purchased in quantity.

My first acquisition among these was *C. Imperati*, which I have previously mentioned in these pages, and which, although comparatively common, is still absent from the vast majority of gardens. Few are more beautiful to the admirer of the genus, with its delicate fawn coloured outer petals beautifully pencilled with dark

purple, so dark as to be not far from truthfully called black by many. Thus when in bud the flowers exhibit a delicacy and refinement which charm the careful observer, but when the flowers open the expanded petals are of a beautiful violet or purple. There is also a white variety which is still high in price, and another new form named *C. Imperati longiflorus*. Another neat little Crocus, apparently closely allied to *C. Imperati*, is *C. minimus*. This is inferior in beauty to the former, the colours and pencilling being less distinct.

Another very pretty little winter flowering Crocus is *C. Aucheri*, a Greek species, which is well figured in Wooster's "Alpine Plants." The flowers are small but freely produced, and are of a beautiful orange with a blackish stain at the base of the petals. This species possesses one advantage over *C. Imperati* in being as bright when in bud as when expanded, an advantage not to be under-estimated, as it must be remembered that sunny days are none too plentiful in January in our northern clime. *C. Aucheri* is said to be synonymous with *C. Olivieri*, but, unless I am mistaken, the latter is commoner and cheaper, being known to the Dutch by the name of *Botergeel* (butter yellow). I am not so fortunate, however, as to possess Mr. Maw's monograph of the genus, the recognised authority as to the various species.

Another beautiful species possessing the advantage of brilliant outer petals is *C. Sieberi*, which forms a fine companion to *C. Aucheri*. The flowers of this are usually described as pale purple, a description which, while possibly correct from a colourist's point of view, deprives the mind of the reader of a realisation of the brightness of the flower. This is a bright little species, and was in bud with me on New Year's Day, and is still in flower. *C. Sieberi* has a yellow zone inside, and is marked with deep yellow stains at the base of the outside of the petals. This is also a native of Greece.

A species which is so cheap that it may be deemed almost unworthy of special note, costing little more than the Dutch Crocuses, is *C. biflorus*, known as the Scotch Crocus—why I know not, as, so far as I am aware, it is not a native of Scotland. This species in time of flowering links together the early and the later Crocuses. The type is white outside, assuming a purplish tinge with age, and feathered with deep purple. When expanded the flowers are pure white with a bright yellow zone. *C. biflorus* is a special favourite with the bees, which seem to prefer it to any others. It has a distinct sweet perfume, which may possibly attract them. I have often watched them as they hummed about and extracted the nectar from a large clump which delighted me with its beauty.

Some other species and varieties might have been named, but I fear these notes have already extended to an undue length, and they must be reserved for some other time. There is no need to give details as to their cultivation. A sunny sheltered position should be chosen for them, and a sheet of glass or a handlight placed over them in stormy weather will give all the protection these charming flowers require to enable them to open their beautiful blooms, and reward their possessor for his little care and expense.—S. ARNOTT.



THE NATIONAL CHRYSANTHEMUM SOCIETY.

WE learn that in view of the Centenary Festival of the above Society, the list of Vice-Presidents is being extended, and donations are flowing in to Mr. Holmes at quite an overwhelming rate. Amongst the latest additions to the dignitaries named, are the Duke of Westminster and the Right Hon. J. Chamberlain, M.P. Several fresh societies have also become affiliated. Matters generally, indeed, seem to have a roseate tint.

CHRYSANTHEMUM ANALYSIS, 1885-1889.

THE last November Show of the National Chrysanthemum Society was the smallest they have yet held. The fixture was well timed for anything like an average year, but the flowering season of 1889 proved so remarkably forward that a very large number of the best flowers were over in many localities before this Exhibition came on. For our present purpose this may be regarded as rather a fortunate circumstance than otherwise. The fact is the early varieties having been in recent years unduly favoured by the seasons now stand somewhat higher, and the later sorts somewhat lower in the analysis than they are justly entitled to do; it is therefore only right and fair that on this occasion the late-flowering varieties should have had a little extra consideration shown them. The following short table shows the total number of incurred

and Japanese Chrysanthemums staged in competition at all the leading exhibitions held by the National Society up to the present time :—

1885	Incurved	839	Japanese	835
1886	"	1080	"	1026
1887	"	964	"	1221
1888	"	1147	"	1759
1889	"	682	"	922
		4712		5763

It will thus be seen that about 10,500 blooms have been tabulated in all; the outcome of which tabulation will be found in the accompanying tables of the Incurved and Japanese sections.

As in former years the established varieties are arranged in the tables according to the average number of times they were shown at all the five Exhibitions. In the case, however, of the newer sorts a rather different system has to be adopted, as Chrysanthemums are not as a rule in the hands of exhibitors generally for the first year or two after they are distributed. Accordingly those varieties which came out in 1886 are allotted places according to the frequency with which they were shown at the last two Exhibitions of the Society, while the positions accorded to the still newer kinds—those of 1887, 1888, and 1889—are entirely dependent upon the number of times they were staged at the Royal Aquarium in November last.

Taking first the table of Incurved varieties, we still find Empress of India, immediately followed by Queen of England, at the head of the analysis, and yet the first named is the oldest but five, and the other the oldest of all on the list. The sorts which stand out as having been more frequently shown than usual are Alfred Salter, Emily Dale, Princess of Teck, Cherub, Empress Eugénie, Mr. Brunlees, and notably Barbara,

which has risen three steps since last year. On the other hand Jeanne d'Arc, Lord Wolseley, Mr. Bunn, Nil Desperandum, Jardin des Plantes, and Prince of Wales were very indifferently represented.

Neither of the two 1886 varieties have improved their positions since the last list was issued; indeed, Bronze Queen of England has fallen from No. 22 to No. 30, while Mrs. Norman Davis, although a late sort, still remains at the bottom of the analysis. It is, however, pleasant to welcome two new kinds, which have already on their first appearance so greatly distinguished themselves as have Miss M. A. Haggas and Violet Tomlin. The former has at once risen to No. 22, and the latter to No. 24 on the list. Both of these were sent out in 1888. The only new Incurved varieties which appear in the present analysis, and are not to be found in the first one published five years ago, are these same four varieties—viz., Miss M. A. Haggas, Violet Tomlin, Bronze Queen of England, and Mrs. Norman Davis, showing what little progress has been made in this section in recent years.

Of all the Japanese Chrysanthemums the one which was most frequently shown last year was Edwin Molyneux—nevertheless, the blooms of this fine new variety were, as a rule, inferior to those staged at the previous Exhibition. Madame John Laing was to be seen in nearly as many stands as Edwin Molyneux, and was moreover splendidly represented. Other sorts specially favoured by the season were Val d'Andorre, Mr. Ralph Brocklebank, Carew Underwood, Meg Merrilies, Boule d'Or, Baronne de Prailly, Japonais, and Gloriosum; and yet only four of these ten Japs are classed in the National Chrysanthemum Society's catalogue as late-flowering kinds. The following, together with many other well-known sorts, were, on the other hand, scarcely anywhere to be seen:—Maiden's Blush, Comte de Germiny, La Triomphante, Bertier Rendatler, Monsieur Astorg, Peter the Great, and Monsieur Tarin.

INCURVED VARIETIES.

Position in Present Analysis.	Average Number of Times Shown in the Five Years.	Number of Times Shown in 1889.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	58.4	48	Empress of India	1861	{ Downie, Laird, and Laing	Pure white.
2	52.8	49	Queen of England	1847	J. Salter	Delicate rose blush.
3	48.8	42	Lord Alcester	1882	Freemantle	Pale primrose.
4	47.0	43	Golden Empress of India	1877	Loader	Pale yellow.
5	43.4	30	Jeanne d'Arc.....	1881	Lacroix	Blush white, tipped purple.
6	37.4	22	Lord Wolseley	1883	Orchard	Bronzy red.
7	37.0	26	John Salter	1866	J. Salter	Cinnamon, orange centre.
8	33.2	21	Prince Alfred	1863	Davis	Rose carmine, shaded purple.
9	32.6	26	Alfred Salter.....	1856	J. Salter	Clear lilac pink.
10	31.8	22	Princess of Wales.....	1865	Davis	Blush, tinted rose.
11	31.6	11	Mr. Bunn	1881	Bunn	Bright golden yellow.
12	30.2	31	{ Emily Dale	1874	Dale ..	Pale straw colour.
			{ Golden Queen of England	1859	J. Salter }	
13	28.2	10	Nil Desperandum	1862	Smith	Dark orange red.
14	24.6	15	Lady Hardinge	1861	Clark	Silvery rose.
15	23.4	13	Jardin des Plantes	1859	J. Salter	Deep golden yellow.
16	20.8	27	Barbara	1869	J. Salter	Bright amber, shaded orange.
16	20.8	12	Mrs. W. Shipman.....	1878	Shipman.....	Fawn colour.
17	19.2	12	Mrs. Heale.....	1867	Heale	Pure white.
18	18.4	17	Princess of Teck	1868	Pethers	White, suffused pink.
19	17.6	13	Hero of Stoke Newington	1873	Forsyth	Rose pink.
20	16.4	1	Prince of Wales	1865	Davis	Purple.
21	16.2	11	Refulgens	1873	Cannell	Rich purple maroon.
22	16.0	16	Miss M. A. Haggas	1888	—	Soft bright yellow.
23	15.8	15	Cherub	1862	Smith	Orange, tinted rose bronze.
24	14.0	14	Violet Tomlin	1888	Doughty	Bright violet purple.
25	13.4	6	Venus.....	1863	J. Salter	Lilac, suffused pink.
26	12.6	4	Beverley.....	1863	Smith	Cream white.
26	12.6	2	White Venus	1872	Shrimpton	Pure white.
27	11.6	1	Golden George Glenny.....	1876	Dixon	Bright yellow.
28	11.4	15	Empress Eugénie.....	1866	Pethers	Rosy lilac.
29	11.2	14	Mr. Brunlees	1884	Smith	Indian red, tipped gold.
29	11.2	11	Princess Beatrice	1868	Wyness	Delicate rose pink.
30	10.0	4	Bronze Queen of England	1886	Carter	Bronze brown, tinted rose.
30	10.0	2	Mr. George Glenny	1870	Waters	Primrose yellow.
31	9.4	4	Mrs. George Rundle.....	1868	Rundle	Pure white.
32	8.0	5	Golden Eagle.....	1863	Davis	Reddish bronze, tipped orange.
33	6.8	5	Baron Beust	1868	Pethers	Chestnut red, shaded yellow.
34	6.4	1	Eve	1865	Smith	Cream white.
34	6.4	1	Lady Slade.....	1864	Smith	Lilac pink.
35	6.2	5	Mabel Ward	1882	Ward	Buff yellow.
36	5.5	6	Mrs. Norman Davis	1886	Mizen	Rich golden yellow.
37	5.2	3	Novelty	1860	Clark	Blush.

Of the 1886 flowers no fewer than find eleven places in the present analysis. At the head of these, at No. 4, stands Edwin Molyneux. Mr. Ralph Brocklebank (the pale yellow Meg Merrilies) comes next at No. 11, while a little lower down at No. 16 we come upon Carew Underwood—the beautiful bronze sport from Baronne de Prailly. Madame Baco (No. 43) and Monsieur Bernard (No. 51) have also risen

in the analysis, but Monsieur J. M. Pigny (No. 36), Mrs. J. Wright (No. 39), Florence Percy (No. 43), Roi des Japonais (No. 45), Monsieur H. Elliott (No. 49), and Amy Furze (No. 57) have all apparently declined in public favour. I say apparently, because in so abnormal a season anything like an early sort had but little chance of becoming fairly represented.

JAPANESE VARIETIES.

Position in Present Analysis.	Average Number of Times Shown in the Five Years.	Number of Times Shown in 1889.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	49.0	32	Madame C. Audiguier	1879	Marrouch	Deep mauve.
2	47.6	30	Mdlle. Lacroix	1880	Lacroix	White.
3	41.0	5	Maiden's Blush	1885	Stevens	Creamy white, tinted blush.
4	39.5	41	Edwin Molyneux	1886	Cannell	Chestnut crimson, golden reverse.
5	37.4	32	Jeanne Délaux	1882	Délaux	Dark crimson maroon.
6	36.4	31	Val d'Andorre	1883	Pertuzès	Orange red.
7	34.0	22	Fair Maid of Guernsey	1872	Downton	Pure white.
8	32.0	32	Avalanche	1887	Cannell	Snow white.
9	29.4	8	Elaine	1882	Downton	Pure white.
10	28.2	7	Comte de Germiny	1881	Veitch	Nankeen, striped crimson brown.
10	28.2	37	Madame John Laing	1885	Délaux	Creamy white, tinged rose.
11	27.5	29	Mr. Ralph Brocklebank	1886	Winkworth	Yellow.
12	27.1	12	Criterion	1873	J. Salter	Orange amber.
13	27.0	27	Sunflower	1888	Cannell	Rich golden yellow.
14	26.8	9	Soleil Levant	1874	—	Delicate yellow.
15	23.2	17	Thunberg	1881	Veitch	Soft golden yellow.
16	23.0	22	Carew Underwood	1886	Beckett	Bronze.
17	21.6	4	La Triomphante	1885	Reydellet	White, suffused purplish rose.
18	21.4	1	Bertier Rendatler	1880	Délaux	Orange, shaded yellow and red.
19	21.2	14	Marguerite Marrouch	1878	Marrouch	Crimson, edged yellow.
20	21.0	18	Belle Paule	1881	Marrouch	White, edged rosy purple.
21	20.8	9	Monsieur Astorg	1883	Délaux	Silvery white, purplish centre.
22	20.2	4	Peter the Great	1875	Carey	Lemon yellow.
23	19.8	28	Meg Merrilies	1871	J. Salter	Sulphur white.
24	19.0	28	Boule d'Or	1882	Bernard	Rich yellow, tipped bronze
25	18.8	20	Baronne de Prailly	1868	J. Salter	Pale rose.
26	17.6	2	Monsieur Tarin	1883	Délaux	Silvery mauve.
27	17.0	27	Japonais	1880	Délaux	Bronze yellow.
28	16.2	5	Mdlle. B. Pigny	1885	—	White.
29	15.2	12	L'Adorable	1885	Délaux	Canary yellow, tipped purple.
29	15.2	12	Triomphe de la Rue des Châtelets	1881	Pertuzès	Reddish salmon.
30	14.4	4	Madame de Sévin	1884	—	Rosy purple.
31	13.6	13	Duchess of Albany	1883	Jackson	Orange buff.
32	13.4	1	Hiver Fleuri	1879	Délaux	Creamy white, suffused pale rose.
33	12.6	8	Monsieur J. Laing	1884	Délaux	Reddish brown, gold reverse.
34	11.6	0	Triomphe du Nord	1857	—	Bronze crimson.
35	11.4	9	Yellow Dragon	1863	Salter	Bright golden yellow.
36	11.0	21	Gloriosum	1885	Waterer	Orange to golden yellow.
36	11.0	8	Monsieur J. M. Pigny	1886	Audiguier	White.
37	10.8	3	Monsieur Ardène	1878	Lacroix	Rosy lilac.
37	10.8	6	Monsieur Freeman	1885	Délaux	Purplish rose, white centre.
38	10.6	3	Fernand Féral	1884	Délaux	Rosy mauve.
39	10.5	7	Mrs. J. Wright	1886	Laing	Pure white.
40	10.2	1	Album Plenum	—	—	Creamy white.
41	10.0	0	Flamme de Punch	1883	Délaux	Orange, shaded red.
42	9.4	5	Monsieur Brunet	1879	Lacroix	Lilac mauve.
43	9.0	4	Florence Percy	1886	Allen	Creamy white.
43	9.0	12	Madame Baco	1886	Davis	Deep rose.
44	8.6	7	Comtesse de Beauregard	1867	J. Salter	Rosy lilac.
45	8.5	5	Roi des Japonais	1886	Lacroix	Crimson maroon, tipped gold,
46	8.2	0	Margot	1883	Délaux	Rosy salmon.
46	8.2	1	Monsieur Délaux	1877	Délaux	Red crimson, yellow centre.
47	8.0	8	Condor	1888	Boucharlat	White.
48	7.6	3	Balmoreau	1878	Délaux	Rosy purple.
48	7.6	0	Dr. Macary	1878	Délaux	Rose and white.
49	7.5	9	Monsieur H. Elliott	1886	Délaux	Salmon-buff, tinted rose.
50	7.2	1	Bouquet Fait	1880	Délaux	Soft rose pink.
50	7.2	0	William Robinson	1884	May	Orange, tinted rose.
51	7.0	1	Fanny Boucharlat	1879	Délaux	Creamy white.
51	7.0	11	Monsieur Bernard	1886	Laing	Rosy purple.
52	6.6	3	Dormillon	1883	Lacroix	Rose purple.
53	6.5	2	Martha Harding	1885	Stevens	Golden yellow, shaded orange.
54	6.4	0	Monsieur H. Jacotot	1883	Délaux	Rich crimson, shaded gold.
55	6.0	6	Etoile de Lyon	1888	Boucharlat	Rosy purple.
55	6.0	6	George Daniels	1888	Boucharlat	Pale pink.
56	5.8	4	Grandiflorum	1863	Fortune	Bright golden yellow.
57	5.5	5	Amy Furze	1886	Coombe	Blush rose, tinged lilac.
58	5.4	0	Source d'Or	1882	Délaux	Orange, gold shading.
59	5.2	0	Agréments de la Nature	1881	Délaux	Rich golden yellow.

Mr. Garner having retired from the list, it is to be hoped not permanently, we are indebted to the year 1887 for only one single Jap—Avalanche. This superb flower has, however, in this one year, and that by no means a favourable one for the variety, risen from No. 21 to No. 8 in the analysis. In fact in 1889 it was staged as often as the premier flower—Madame C. Audiguier.

Sunflower, another splendid novelty and the champion flower of 1888, on what is virtually its first appearance at once takes a prominent position, having been staged twenty-seven times last year and already standing No. 13 on the list. The rest of the new sorts sent out in the same year will be found as follows:—Condor at No. 47, and Etoile de Lyon and George Daniels both at No. 55. These latter are certainly modest positions, but then it must be borne in mind what youthful aspirants for fame these 1888 varieties are, and that it is not given to all good new varieties to take the Chrysanthemum public by storm as Edwin Molyneux, Avalanche, and Sunflower have done in recent years. I find that no fewer than twenty-four new Japanese Chrysanthemums appear in the analysis this year which were absent from that issued only five years ago. Among these may be mentioned Maiden's Blush, Edwin Molyneux, Avalanche, Madame J. Laing, Mr. R. Brocklebank, Sunflower, Carew Underwood and La Triomphante as undoubted acquisitions.

REFLEXED, LARGE ANEMONES, POMPONS, AND POMPON ANEMONE VARIETIES.

Judging by the number of times the different varieties were shown at the last few exhibitions of the National Chrysanthemum Society the following short lists represent the cream of the above sections.

Reflexed.—Cullingfordi, Cloth of Gold, King of Crimson, Golden Christine, Pink Christine, Chevalier Domage, Peach Christine, Phidias, and Dr. Sharpe.

Large Anemones.—Lady Margaret, Empress, Emperor, Acquisition, Gluck, Georges Sand, Fleur de Marie, Mrs. Pethers and J. Thorpe, junr.

Pompoms.—Black Douglas, Mdle. Marthe, Golden Mdle. Marthe, Mdle. Elise Dordan, Prince of Orange, Marabout, and President.

Pompon Anemones.—Antonius, Mr. Astie, Marguerite de Coi, Madame Chalonge, Miss Nightingale, Perle, Marie Stuart and Astrea.

I once more, in conclusion, express my indebtedness to Mr. Harman Payne for providing me with the dates and raisers' names of a few of the newer Japanese Chrysanthemums in the foregoing tables.—E. M., *Berkhamsted*.

PARSLEY.

SOME vegetables it is possible to dispense with should a failure occur, but as regards Parsley there is no cessation in the demand, and scarcity means worry at the very least. Then it is such a common everyday crop that very little it may be considered can be said about it. But experience has shown me that even with Parsley there is a right method of proceeding, and no doubt many wrong ways of treating it. In the first place I should say a good strain is of the first importance, and on that account for many years I have selected a few plants and procured seed from these. In a good strain the leaves should be light green in colour, of moderate growth, and the foliage well curled. Then a poor soil seems to be better than a rich one; indeed, dung should on no account be applied to ground on which it is intended to grow Parsley. Lastly, in order to make as sure as possible of a continuous supply two sowings should be made. Though I do not always practise this myself, yet the omission of the second sowing is risky. I need only enlarge somewhat on the sowing and treatment of the plants. Make the earliest sowing by the beginning of March, and select soil in good condition. By May the young plants will be large enough to be transplanted on a damp cloudy day. Set the plants in rows 12 inches apart. One watering at the time of planting is all that is required, the ground is hoed immediately after finishing, and an occasional hoeing is all the plant will require throughout the summer. Where a continued and unceasing supply has to be met a large number of plants must be grown, say from 500 to 1000. Each plant forms a large tuft of leaves, and the large quantity does away with the necessity of ever picking close, so that on the arrival of winter hardy plants are ready to keep up a supply during the worst period of the year. It has to be noted that sufficient plants are left in the seed rows to carry the supply forward from June until the main crop is ready. When grown in rich soil it is sure to go down during winter, and in spring nothing is left to gather. Poorly grown plants stand ordinary winters well, and hard ones if protected with loose bracken scattered thinly over them, and in spring they are still in perfectly good condition, and capable of carrying on the supply until the spring sown plants are ready. Remove the flower stalks as they appear, and a slight dressing of manure applied from the middle of March up to the beginning of April has a wonderful effect.

It is at this period of the year that plants from a second sowing made in the beginning of August as the very latest date come in useful. The leaves are not large, but they are fresh and prevent a blank which might otherwise occur. The seed is sown

thinly in rows, and little trouble is occasioned by this crop if lines are drawn on a quarter of newly dug Potatoes, no digging or other preparation being required apart from levelling the ground and raking it even.—B. R.

THE JACOBÆA LILY.

THIS is a bulbous plant with curiously shaped and rich scarlet flowers, and like many other members of the Amaryllis family may be had in flower all through the winter months, and hence be extremely useful. It is usually catalogued as *Amaryllis formosissima*, but its correct name is *Sprekelia formosissima*, and it hails from Mexico. It is certainly to be regretted that their beautiful flowers fade so quickly, but although they only last from four to six days they are nevertheless useful where choice flowers are required for cutting or for the decoration of conservatories through the winter. We find that established bulbs will expand their flowers in from four to six weeks after starting the bulbs in a temperature of 65° to 70°, but as soon as the flowers are open the plants should be removed to a cooler house. They may be grown singly in 5-inch pots, but as each bulb only throws up a one-flowered scape it is best to place about five bulbs in a 7-inch pot, especially if required for decorative purposes in a large house, or even for cutting purposes. The flowers usually appear with the leaves, and like all Amaryllises they are best when established and their pots are full of roots; indeed, they should be forced gently the first year they are potted, and, with an eye to future usefulness, they must be well cared for after flowering.

This is where many people fail with bulbous plants. As soon as the flowers have faded, and this is generally at an early stage of the plant's growth for the season, they are thrown aside and neglected. We know, alas! too well that it is impossible to do justice to the host of dissimilar plants that have to pass through the gardener's hands, especially during the forcing season; but this does not alter the fact that unless the embryo flower be formed in the bulb before the leaves die, forcing or even natural growth, so far as flowers are concerned, will be a disappointment the next year. We find three parts loam and one part each of leaf mould and sand a good compost for this *Sprekelia*, but it will only require potting every second or third year, and if the surface soil is removed every season before starting the bulb and fresh compost supplied, also all suckers removed and the drainage kept free, they will flower for years without being potted. After flowering keep the plants well exposed to the sun until growth is completed, then gradually withhold water, and finally dry them off and rest them for at least three months.—J. H. W.

TREATMENT OF MANURES, SOILS, AND CROPS.

ONIONS.

It is not difficult for old gardeners to grow any vegetable produce in a garden they are acquainted with, but it will often put an old practitioner in a fix when he is transferred to a strange soil and locality, and the most successful cultivator is often overtaken in his old haunts with a series of failures, and that with a crop he has been unsurpassed in growing before. I could give many instances of this. How much more necessary, then, is it to instruct young beginners or fresh comers into certain localities as to the varieties suited to that part. Yet when a practical writer and gardener (say from the south) gives his experience and treatment, someone from the north or east or upon a different soil writes and contradicts him because he has grown a plant under different treatment with excellent results. That is also the case with most artificial manures; what one proves beneficial another fails with, but home manure is sure to suit the soil and crops in its district. Supply plenty in good condition, well work the soil, and the best results will be obtained. I was struck by seeing some twenty loads per acre of home or farmyard manure being placed upon the land by an artificial manure manufacturer. Yet he gave good dressings of these at the proper time, and no doubt secured a return that satisfied him; but in my opinion more disease has been created amongst vegetation by these manures than we are aware of.

For Onions make use of the Celery ground well manured. Deep digging will do, but it is best if the soil can be turned up from the bottom, using soot and lime. Sow spring Onions in February; make the ground firm before sowing, and roll after. The best method that I have found to act is either sow right through or cut them into beds by hoeing a path every 4 feet at right angles to the drills, or first mark out the paths and draw drills the length of the ground, and miss the path when sowing. The advantage of this is that Onion beds, being a nursery for weeds, these paths, which are only 1 foot wide, offer an easy

way for a man to walk up and use the Dutch hoe. Being at right angles to the drills the weeds can easily be drawn and carried out by the paths, whereas if the walks are parallel to the drills it is much more difficult to hoe and clean them. The varieties I prefer are James's Keeping, White Spanish, and Brown Globe, but this depends upon the soil. Bedfordshire Champion, Magnum Bonum, or Rousham Park are very good for light soils. Great care should be taken when hoeing not to cut the soil from under the Onions, and no one should be allowed to walk amongst them except by the paths, as they are injured by being knocked down.

One of the greatest enemies we have to contend with is the Onion fly or maggot. With this prevention is better than cure, and if liquid manure from stable cesspools is sprinkled over them, so as to settle in the axil of the leaf, it will be found that the fly will not deposit its eggs there. Petroleum mixed with water can be sprayed on with a syringe, or the petroleum can be mixed with a little softsoap and soda in hot water. Drenchings of liquid manure should be given in warm and dry weather. Water them on the foliage with a coarse rose. It is easy with good management and season to grow from 24 to 30 tons per acre. Autumn or Tripoli Onions should be sown in August, and transplanted as soon as large enough upon a warm border, and if well seen to and watered during the following summer Onions up to 20 inches in circumference will reward one's efforts. I have seen 30 tons per acre of spring and autumn Onions, the bulbs 22 inches in circumference, through proper attention being given them.

PARSNIPS.

To obtain good straight Parsnips the ground must be well worked in depth and pulverised. Too rich soil is injurious to them. Sow Hollow Crown and Student in February or early March.

CARROTS.

These can be treated the same as Parsnips. Carrots will crack badly if grown in too rich a soil. Sow Early Nantes the middle of February upon a warm border, and James's Intermediate or Veitch's Earliest the beginning of March, or at the same time as Parsnips. To procure good, straight, and long Carrots for exhibition crowbar a few holes, and fill with firm and fine soil, and sow seeds upon them. Do not be afraid of thinning either Parsnips or Carrots.—G. A. BISHOP.

TURNIPS.

FEW vegetables are more delicious than young quickly grown Turnips, and I think it may be safely said, at least of these, that there has been a marked improvement in the sorts which are grown now. No early variety can in any way compare with the Early Milan. This we begin sowing in small quantities in March, and though a crop or two may be lost through the plants rushing to seed, still we are favoured occasionally with an unexpected dish from an early sowing. To follow the above I do not know anything better than Early Snowball. This variety we sow in rapid succession all through the summer, finishing with two or three extensive sowings in August and September; these latter produce much-appreciated roots throughout winter and spring. I have tried a French variety of elongated shape called "Navet de Vertus;" this for winter work is exceedingly good. I think the flavour is better even than that of Snowball, and that is saying a good deal. This variety is sown early in August.

Turnips delight in a rich friable soil, and rapidity of growth is worth aiming at, as the flavour is so much improved by a quick growth. During summer sowings must be made not longer than ten days apart, so that nothing but young roots may be used. In dry weather the drills when drawn out should be well watered, a slight dressing of nitrate and superphosphate in equal proportions mixed with two parts of dry soil then sprinkled along the drills, and as soon as the moisture has dried sufficiently the seed may be sown thinly and covered with soil. When fly attacks this crop syringe or water through a fine rose with a weak solution of petroleum, softsoap, and water; dredge before drying with fine dry soil, in which one-eighth in bulk of tobacco powder has been mixed. Turnips, like many other crops, are ruined by thick sowing and late thinning. In dry weather it is safe to sow some thickly, but as a rule little seed is required. The plants when thinned need not be more than 6 inches apart, but even 2 inches less will suffice where space is limited. Where Celery is grown in quantity, say about 1200 to 1800 plants, there will be a long stretch of ridges between the trenches, and on these ridges Turnips do better than in any other position. We also grow them between rows of Peas, and for late autumn and winter supply sow seed alongside Spinach, Onions, &c., on ground cleared of second early Potatoes. Turnip tops are

sometimes used in spring as a substitute for Greens, and I have known Turnips placed in a Mushroom house to produce blanched tops, which were used instead of Seakale.—B.

A MUSHROOM FREAK.

DR. GEORGE WALKER of Wimbledon sends us a specimen of what he humorously calls *Agaricus acrobaticus*. One Mushroom is growing on the other, the backs being quite united, and the stalk of the upper one is better developed than in the illustration. Perhaps the worthy doctor is not quite able to account for the feat of agility performed by his fungological protégé, and we may inform him that the pair put their heads together under pressure when young and until they became united, then the stronger hoisted the weaker on its back, and thus in two respects supported it. Thirty years ago a similar specimen was submitted to us, from which the woodcut was prepared, and it was then stated that occasionally these monstrosities appear where Mushrooms



FIG 25.—A MUSHROOM FREAK.

are largely grown, and it seems to be due to a strong one in a crowded clump forcing one of the smaller ones up. The surfaces became united, and the upper one derives its support from its stronger rival.

MAIDENHAIR FERNS.

As this is the time of the year when the general potting of Maidenhair Ferns is done a few lines on my method may be of service to beginners. I say general potting, because in some gardens they are potted in spring only, and then are all given a shift on. I have seen Ferns which have been grown in the same pots for several years, and have done well, too, with a little soot-water occasionally given them while they were making their growth, but they make finer fronds and larger plants with an occasional shift. I find young plants better for at least two shifts during the year. Many gardeners use peat in their compost for potting, but they are much better without it. How is it that peat is so often recommended to be mixed with loam for potting plants of many kinds (other than Ferns)? It is natural for some plants to grow in peat and others in loam, but it is not natural for many plants to grow in a mixture of peat and loam. The composition of one is very different from the other; I believe it is sometimes mixed because the cultivator is not sure which is the natural soil it is found growing in. Sometimes peat is used to lighten heavy loams; when that is its only use I think leaf mould would be preferable and more natural, but it is surprising how some plants will grow in either peat or loam. Some may say Maidenhairs have grown well with them for many years in peat and loam mixed, and so they have with me, but they have been much better without peat.

I find they are best in a heavy turfy loam two parts, one part coarse silver sand, one decayed leaves (not leaf mould), but leaves

decayed into flakes, which may be broken by rubbing through a half-inch-mesh sieve. The turf is best picked to pieces by hand, and that which drops out in the operation should be put aside for other purposes. The compost must be well mixed and placed in a house to be warmed. The pots also must be washed, crocked, and taken in the house, and, when convenient, the potting should be done in the house at this time of the year. Small shifts are the best for Ferns, leaving just room to force the soil down with an old label only moderately firm. I was taught to pot Ferns very firmly, and when there is plenty of peat in the compost they can be potted more firmly than when heavy loam without peat is used. Take care in potting that the ball is of sufficient depth that the new soil can be level with it exactly, for if it is above the new soil the water will run through and leave the ball dry, and if it is lower the soil will work into the crowns.

When plants have become too large they are sometimes divided and placed into small pots, but they do not take to the soil very readily; the roots are cut about so much that they have to form new ones, during which time the crowns are much exhausted. I find it is a better plan to raise plants from spores, and it is astonishing how soon they make good plants. I have useful plants for decoration (in 60-size pots) that came from spores sown only thirteen months ago, and some have been potted into 48's, while others are only in thumb pots, but even these are prized for placing in small vases. Divided plants cannot often be had in such small pots for usefulness in the house.

I have tried many plans of raising plants from spores, but only the one which is simple and the most successful is needed. I procure a deep pan and place a little good drainage in the bottom; some heavy turfy loam is then obtained, which is pulled into pieces about the size of pigeon's eggs. These are stirred about in a box of silver sand, so that as much as possible can stick to them. I then pack them closely and rather firmly together in the pan, but leave the surface quite rough and about an inch below the surface of the rim of the pan. It is then well watered with a fine rose, and the seed spores are sown upon it; the pan is then covered with a square of glass and kept in a shady place in a temperature of 60°. The pan is occasionally dipped into a tank of water, so that the water can gradually rise to the surface from the bottom, taking care that it does not rise above the surface of the soil to disturb the spores. When the seedlings are well up the glass is tilted, and the plants are gradually brought to the light, but it is better to let them attain a fair size for handling before potting them singly into thimble size pots, and when this is done they should be kept rather close and shaded, but do not damp them overhead while being kept close. In fact, I never wet the foliage at any time if I can avoid it, but they enjoy a moist atmosphere at all times.
—J. L. B.



EVENTS OF THE WEEK.—The spring shows will shortly be occupying the attention of horticulturists, but at present engagements of a special character are not numerous. The following Society meetings take place during the week;—The Royal Society on Thursday at 4.30 P.M.; the Quekett Club on Friday at 8 P.M.; and the Society of Arts on Wednesday, March 5th, at 8 P.M.

— **A HALL FOR HORTICULTURE.**—In reference to this matter we have received from the Secretary of the Royal Horticultural Society a circular now being issued to the Fellows, and explaining the project of which an outline was given in this Journal, page 123, February 13th. The document reached just as we were going to press, so that we can only give the following paragraphs:—"It is proposed to invite all friends of horticulture to join together in placing in the hands of three Trustees (of whom Baron Schröder is willing to be one) a sum of £40,000, to be held by the Trustees free of interest for the benefit of the Society, and to be gradually returned to the lenders by annual drawings of the bonds which they will receive from the Trustees. The drawings to commence, it is hoped, two years after the opening of the new buildings. Of this sum of £40,000, the greater part would be invested by the Trustees in first-class securities, yielding interest, and the remainder would be invested in the buildings to be erected, the Society paying rent for them, and the total of interest and rent thus received by the Trustees would suffice for the payment

of the ground rent. It is hoped that a considerable sum would be annually obtained for the purpose of redemption of bonds by letting the basement and the great hall itself for various purposes at times when it was not required by the Society." We are glad to notice the following additions to the list of subscribers already published. Sir Trevor Lawrence, Bart., M.P., £250; Messrs. James H. Veitch and Arthur J. Veitch, each £50; Mr. W. Marshall, £25; Messrs. Hurst and Sons, £200; and Messrs. Seeger & Tropp, £25.

— **SEVERAL** bright days have been experienced in the METROPOLITAN DISTRICT, but some unusually thick fogs have also occurred on one or two mornings. Slight frosts in the morning, with somewhat keen north-easterly winds have been the rule. The ground is in good condition except in low-lying districts.

— **THE WEATHER IN THE NORTH.**—February 17th-24th. The first days of the week were dull and cold, with east wind. Sleety showers fell in the afternoon of the 20th. Since the middle of the following day the weather has been delightful, with slight morning frosts. The 23rd was lovely, the air full of sunshine and song. The barometer for a day or two has been unusually high.—B. D.

— **THE** schedule of the RICHMOND (SURREY) HORTICULTURAL SOCIETY'S SPRING SHOW announces that the dates are Tuesday and Wednesday, March 18th and 19th, and the place selected is the Castle Assembly Rooms. Thirty-six classes are enumerated, with three prizes in most of them, for Hyacinths, Tulips, Narcissus, Azaleas, Cyclamens, Spireas, Dielytras, Deutzias, and other forced plants. Numerous special prizes are also offered, and those who remember the very attractive display provided last year can only desire an equally successful repetition. Of the metropolitan local Societies, Richmond is the only one that includes a Spring Show in their programme, and the experiment is well worthy encouragement. Mr. J. H. Ford, 22, George Street, is the Hon. Secretary.

— **AN** ordinary meeting of the ESSEX FIELD CLUB will be held in the Loughton Public Hall on Saturday evening, March 1st, 1890, at seven o'clock. After exhibitions a paper will be read:—"The Micro-Fungi of Epping Forest; How to collect, preserve, and study them." Section I., The Uredines. Section II., Myxogasters. By M. C. Cooke, Esq., M.A., LL.D., A.L.S., &c. The paper will be illustrated by specimens, and members having microscopes are asked to bring them, so that the smaller forms may be shown. Dr. Cooke's discourse will be the second of a series which the Council intend to promote from time to time, with the object of inciting and advising members to the selection of lines of practical biological and geological study. Exhibitions of objects of natural history, geology, or microscopy are solicited for the above meeting. Intending exhibitors are requested to communicate with the Hon. Secretaries.

— **BIRMINGHAM GARDENERS' ASSOCIATION.**—At a meeting on February 18th Mr. W. Spinks read a paper on the Tomato, giving full cultural instructions, together with a list of varieties he had from experience found best. Reference was made to the successful culture of the Tomato at Chiswick, and the single rod system was advocated by Mr. Spinks, as well as by others present. A good practical discussion followed.

— **OSIERS AND FRUIT TREES.**—Owing to the leniency of our officials with criminals who plunder our gardens fruit-growing with us in many cases has become a thing of the past. As a screen from public view to my garden, and at the same time affording honey and pollen to my bees, I planted Willows of sorts on one side of it; close to a Pear tree I planted some of the "rat-tail" sort, which forms quite a thicket, yet the Pear tree so surrounded never produced a finer crop than it did last autumn, corroborating all Mr. J. Wright says in the leader of February 20th. But what about the use of Willows for paper making? Apropos of fruit-growing, the question of planting has not been fully exhausted. There are two planting times recommended—viz., at the fall and during February or March. In making a new plantation, in addition to deep tilling and drainage, I consider it of the greatest importance to begin planting at the end of September and finish not later than the middle of October. My reason for this early work is that with early mulching at the same time the rootlets are bent on coming near the surface, which, owing to the earliness, are produced abundantly before the foliage drops. When planted later rootlets are not formed, and if delayed till March the ground is often so dry as to cause the rootlets to descend for moisture.—W. T.

— **TRADE ANNOUNCEMENT.**—Mr. H. J. Jones, until recently in partnership with Mr. N. Davis at Camberwell, has now commenced business on his own account at the Rycroft Nursery, Hitber Green, Lewisham.

— **MESSRS. B. S. WILLIAMS & SON** send us examples of their Meteor strain of Primulas, red, white, and blue. The flowers are of good form and substance, the darker colours rich and bright, and the white pure, without any suffusion.

— **GARDENING APPOINTMENT.**—We are desired to say that Mr. H. Dunkin, whose appointment was announced recently, decided not to remain at Porter's Park, and that he has been succeeded by Mr. W. W. Edwards, formerly gardener to A. H. Lancaster, Esq., Honeylands, Waltham Abbey, Essex.

— **EARLY LETTUCES.**—A French correspondent who has been interested in Mr. Bardney's article on Cos Lettuces (page 112) states that a new "Early self-folding Trianon, a little shorter than Paris White, but large, firm, some days earlier, and slow to run to seed, is being sent out this year by Messrs. Vilmorin." The variety will probably be obtained by English seedsmen and find a place in our gardens.

— **MR. ARTHUR H. KETTLEWELL** sends us a manual on the art of **LANDSCAPE GARDENING**. It comprises three short essays, the first dealing briefly with the general principles of the art, the second on the different kinds of gardens, and the third on practical work. It is a very short epitome of a great subject, and contains suggestive hints on garden arrangements and planting. Mr. R. W. Satchell, Kington, is the publisher.

— **FRAGRANT FERNS.**—R. I. L. writes:—"Whatever the merit of *Drynaria Willdenovi* may be in point of perfume, there is nothing perhaps among Ferns that can equal the delightful odour of *Nephrodium fragrans*. It is not often, but it is sometimes met with in hardy and greenhouse collections. The perfume is to me much like that of Violets. It is quite a small plant with fronds, in cultivation, of only a few inches in length. It is native from the Caucasus to Kamschatka, and from Arctic America down to Wisconsin."

— **THE Report of the ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY** for 1889 shows a favourable balance on the year's working, but the summer Show appears to have cost the Society £498, and to have produced £421, not a very satisfactory result. The annual subscriptions are £332. The deficit in receipts is attributed to the bad weather which prevailed on the Show days. The annual general meeting of the members will be held in the small hall, at the Philharmonic Rooms, on Thursday, February 27th, at 7.30 P.M., to transact the following business:—To receive the annual report and statement of accounts; to elect the officers for the current year, also five members to serve on the Council (not less than two of whom must be gardeners).

— **THE WEATHER AND SPRING FLOWERS IN THE ISLE OF WIGHT.**—Mr. C. Orchard, writing from Bembridge, says:—"We are having some cold easterly winds that are keeping the early vegetation back. The spring flowers were very early out of doors. Snowdrops and Crocuses are nearly over. The single and Campenelle Jonquil have been in bloom for some weeks, and to-day I have seen clumps of *Anemone coronaria* and the *Polyanthus Narcissus* in full bloom, also *Myosotis distiflora* and other spring flowers equally as forward. The *Veronicas*, in different varieties, bloom here all the winter, also *Coronaria glauca*, and at The Castle, St. Helen's, to-day I saw a fine plant of *Genista (Cytisus)* well out in bloom on all the points. They stand out here all the winter and bloom profusely in the spring."

— I BEG to ask my brother gardeners through your valuable paper if they have had any practical experience in the successful eradication of **YARROW FROM LAWNS**; if so, may I trouble them to enlighten me? I have a large patch of Yarrow in one of my lawns, which keeps spreading year by year. I have so far been unable to check it. Two years ago the lawn being rather poor I gave it a good dressing of bone dust; later on a good dressing of guano. I also watered it on several occasions with diluted liquid manure, and last year I gave it two dressings of Watson's lawn sand, which for the time appeared to kill it outright; but it sprang up again, and is now more vigorous than ever. I cannot see any other plan but lifting the turf and replacing fresh. If any gardeners have been successful in the eradication of Yarrow I shall be very pleased if they would give me and many others the mode of procedure through our valuable medium, the

Journal of Horticulture. They will greatly oblige one at any rate who would appreciate their kindness.—GEO. CORBETT.

— **THE WILDSMITH MEMORIAL FUND.**—We learn that in connection with the Reading and District Gardeners' Mutual Improvement Association the following Committee has been appointed to carry out the suggested memorial:—President, W. J. Palmer, Esq., J.P. Committee—Chairman, W. J. Palmer, Esq., J.P.: Messrs. W. Baskett, J. Coomes, T. E. Henwood, C. Holt, W. Lees, J. Martin, J. Pound, and G. Stanton. Hon. Treasurers, Arthur W. Sutton, Esq., and Harry J. Veitch, Esq. Hon. Sec., Mr. T. Turton, The Gardens, Maiden Erleigh, Reading. It is promoted in memory of the late Mr. Wildsmith by some of his attached friends for the purpose of placing on the Gardeners' Orphan Fund a child to be known as the Wildsmith Memorial Orphan. It is earnestly hoped that there will be a very ready response to this appeal by all the gardening friends and admirers of Mr. Wildsmith throughout the United Kingdom. The Committee venture to suggest that Mr. Wildsmith having promised his friend Mrs. Hyde that he would do his utmost to place a second child of hers on the Fund (one having been already elected through his instrumentality), they cannot do otherwise than endeavour to carry out their late friend's wishes, and they sincerely trust that a promise made under such peculiarly touching circumstances will commend itself as the most fitting memorial to him that can be raised. At least £130 will be required to enable the Committee to attain the object they have in view.

— **THE first part of the Memoirs and Proceedings of the Manchester Literary and Philosophical Society** for the current session has been issued. It contains a paper by Mr. Charles Bailey on the discovery near Ribbleshead of *ARENARIA GOTHICA*, a plant new to Britain, the typical form of which has so far been recorded only for two Swedish localities. The Ribbleshead specimens are stated to be more robust than those from Sweden. The issue also includes a paper by Mr. Charles H. Lees on the law of cooling and its bearing on the theory of heat in bars; and the first part of Mr. Faraday's "Selections from the (unpublished) Correspondence of Colonel John Leigh Philips, of Mayfield, Manchester" (1761-1814). The latter includes letters from Dr. Henry Clarke (the mathematician), James Sowerby, and a number of other persons of local eminence during the latter half of the last century.—(*Nature*.)

— **EARLY SNOWDROPS.**—Observing the remarks by "W. E., *Rutherglen*," anent Snowdrops, I may say that the plants to which I alluded are all seedlings and distinct from their parents. The one in full bloom on the 8th January being the earliest of any Snowdrop, and others a few days later the largest and prettiest I have seen. Snowdrops have not had the attention paid them they deserve to ensure their improvement. I believe that by careful crossing a great advance in that welcome harbinger of spring will be effected. In a direct line at a mile distant two ways, north and south from me, Snowdrops were in full bloom at the end of December, and double Primroses have been fresh throughout the whole winter in my own garden. Change the position of these Snowdrops, and the earliness of mine, flowered on January 8th, will be apparent. A little sometimes hastens or delays the maturing of plants and flowers. There is only a hedge about 6 feet high which separates my garden from a plantation of Gooseberries, Currants, and Strawberries, and invariably they ripen at least a week earlier than the same varieties in my garden do. Extra manuring in my case may help to this, but the main cause is, I think, a better exposure to the rising sun.—W. T.

— **CABBAGES AT THE WAKEFIELD PAXTON SOCIETY.**—Considering the unfavourable weather which prevailed, a goodly number of the Paxtonians assembled at their rooms at the Saw Hotel to listen to a paper on "The Cultivation of the Cabbage," which had been prepared and was read by one of the Vice-Presidents of the Society—Mr. J. G. Brown, head gardener to J. B. Charlesworth, Esq., J.P., of Hatfield Hall. Mr. H. Oxley, the President, occupied the chair, and Mr. B. Whiteley was in the vice chair. Mr. Brown dealt with his subject in a thoroughly practical manner, indicating the best varieties to use, the mode of raising young plants, the preparation of their permanent quarters, the most suitable soil, and the requisite preparation, manuring, &c. An interesting discussion ensued on the paper, in which the Chairmen and Vice-Chairmen, Messrs. Pitt, Gill, Garnett, Kingswell, Pickersgill, Pye, and others took part. In the course of the discussion some remarks were made with reference to the cooking of the Cabbage, and it was said by some of the speakers that many persons spoil Cabbage in consequence of improper attention to its preparation for the

table. On the motion of Mr. G. W. Fallas (one of the Hon. Secs.), seconded by Mr. Pitt, a very hearty vote of thanks was accorded to Mr. Brown.

— **TOO SUCCESSFUL A PRIZEWINNER.**—As your correspondents do not in my opinion give a satisfactory solution of the above problem, I venture to offer my opinion how this difficulty can be overcome. The Judges may be asked to give their opinion as to the four best exhibits in each class, and the Committee empower two of its number to follow the Judges and decide any first prizes secured above a given number. A special prize should be given to any first prize secured by the too successful prizetaker, and the following three should be awarded the first, second, and third. The funds must be considered. This is the work of the Committee, and can be adjusted according to the funds at disposal. I question the wisdom of Mr. Thomson's remarks on page 118. There would be no difference only in honour, and the exhibitors might as well say it is only a question of 5s. difference between us, and we might as well consider ourselves all equal and ask the lovers of horticulture to subscribe for a present all round. Like my friend Mr. Bates, the total at the end of the season would be more important to me than the honours, though we all like to be first. If the losing of first prizes is not sufficient to move the hinder ones they are not worthy of taking honours others are entitled to. If it is a question of rich and poor cottagers make separate classes.—G. A. BISHOP.

— **RETIREMENT OF A SUCCESSFUL EXHIBITOR.**—There are few, if any, better known gardeners in the west of England than Mr. G. Lock, Newcombe House, Crediton, Devon, and the news that owing to a great increase in his duties he contemplates retirement as far as the cultivation and exhibiting of specimen plants are concerned will be received with widespread regret. He has finally decided not to compete at any more shows, and there can be no mistake about this, as the principal portion of specimen plants are to be sold privately as fast as customers can be found for them. As a rule there are always men ready to take the place of those willing to make room for them, but it is very doubtful if Mr. Lock's grand plants, of which I have seen as many as four large vanloads at one show, will not be badly missed for several seasons. Since hearing of Mr. Lock's decision, and which was not altogether unexpected, I have ascertained from him a few facts that may be of general interest. He has competed at various shows, though principally at Taunton, Exeter, Southampton, Weston-super-Mare, Plymouth, Torquay, and Calne, during the past fifteen years, and has won no less than 616 prizes, out of which number there were 432 firsts. Of the latter sixty-three were for collections of stove and greenhouse plants, forty-nine for fine-foliaged plants, fifty for exotic Ferns, forty-three for groups arranged for effect, thirty-four for single specimen plants, thirty-seven for vegetables, and fifteen for Pine Apples. This will, I think, be considered a very good record for a private gardener, and represents an extraordinary amount of skilful culture, ability in packing and staging, and very hard work.—W. I.

— **CULTIVATING THE ORCHARD.**—A correspondent of the "American Cultivator" writes:—"The orchard is generally supposed to be a place to be utilised for several purposes. If farmers were satisfied to grow a single crop in the orchard, as they are in respect to cereals, there would be fewer complaints about the unprofitableness of fruit; but they always seem desirous of procuring a crop of fruit and a crop of grain or grass from the land also. Now, as the land is no more capable of producing two good crops when used as an orchard than when occupied by other crops, there is no reason why an orchard which includes the land in one sense should be afflicted with more than it should produce. But as the space between the trees seems to be unoccupied, though really not so, the farmer is tempted to put in a crop of grass, grain, or vegetables, and wonders why the orchard is so unproductive. The production of a large crop of fruit deprives the soil of a large quantity of mineral matter, especially potash, and although the trees themselves seem to occupy but a limited space, with their branches in the air, nevertheless the roots occupy every portion of the ground, and are at work upon every atom of available nutritious matter that can be taken from the soil. To add a crop of grass is but subjecting the land already heavily taxed by the trees to the production of two crops. The reason why some orchards flourish while standing in grass is because the demands of the trees and of that particular kind of grass are dissimilar, yet in the course of time one exhausts the soil of that which the other requires. Trees do not require stable manure unless it is well rotted, but an application of lime or wood ashes in the spring and fall, with the surface kept clean with a cultivator, will

greatly improve the trees, and also the quality of the fruit. The plough should not be used by running too deeply, since it tears up and destroys the roots. All the orchard wants is occasional cultivation and a close pruning once a year. Another point to be observed is that of thinning the fruit from young trees when they are too heavy laden. If this is done that remaining will be of a better quality and finer in appearance. In nearly all cases where orchards fail the cause may be traced to mismanagement."

— **THE usual monthly meeting of the ROYAL METEOROLOGICAL SOCIETY** was held on Wednesday evening, the 19th inst., at the Institution of Civil Engineers, 25, Great George Street, Westminster. Mr. O. B. Cuviljé, Mr. W. Harpur, M.Inst.C.E.; and Mr. H. J. Spooner, F.G.S., were elected Fellows of the Society. The following papers were read—viz., 1, "Observations on the Motion of Dust, as Illustrative of the Circulation of the Atmosphere, and of the Development of Certain Cloud Forms," by the Hon. Ralph Abercromby, F.R.Met.Soc. The author has made numerous observations on the motion of dust in various parts of the world, especially on deserts on the west coast of South America. He finds that the wind sometimes blows dust into streaks or lines, which are analogous to fibrous or hairy cirrus clouds; sometimes into transverse ridges and furrows, like solid waves, which are analogous to certain kinds of fleecy cirro-cumulus cloud; sometimes into crescent-shaped heaps with their convex side to the wind, which are perhaps analogous to a rare cloud form called "mackerel scales;" sometimes into whirlwinds, of at least two, if not of three varieties, all of which present some analogies to atmospheric cyclones; sometimes into simple rising clouds, without any rotation, which are analogous to simple cumulus topped squalls; and sometimes into forms intermediate between the whirlwind and simple rising cloud, some of which reproduce in a remarkable manner the combination of rounded, flat, and hairy clouds that are built up over certain types of squalls and showers. Excessive heating of the soil alone does not generate whirlwinds, they require a certain amount of wind from other causes to be moving at the time. The general conclusion is that when the air is in more or less rapid motion from cyclonic or other causes, small eddies of various kinds form themselves, and that they develop the different sorts of gusts, showers, squalls, and whirlwinds. 2, "Cloud Nomenclature," by Capt. D. Wilson-Barker, F.R.Met.Soc. The author proposes a simple division of cloud forms under two heads—viz., cumulus and stratus, and recommends that a more elaborate and complete division should be made of these two types. A number of photographs of clouds were exhibited on the screen in support of this proposal. 3, "An Optical Feature of the Lightning Flash," by E. S. Bruce, M.A., F.R.Met.Soc. It has been stated in the report of the Thunderstorm Committee of the Royal Meteorological Society that there is not the slightest evidence in the photographs of lightning flashes of the angular zigzag or forked forms commonly seen in pictures. The author, however, believes that this is an optical reality, as the clouds on which the projection of the flash is cast are often of the cumulus type, which afford an angular surface. In support of this theory he exhibited some lantern slides of lightning playing over clouds.



DENBROBIUM MACFARLANEI.

THIS exceedingly distinct and beautiful Dendrobium was exhibited by Messrs. J. Veitch & Sons at one of the recent meetings of the Royal Horticultural Society (January 14th, 1890) when a first-class certificate was awarded it by the Orchid Committee.

It is thus described in "The Manual of Orchidaceous Plants." Stems erect, sub-cylindric, 5-8 inches high, usually di- rarely triphyllous. Leaves oblong, sub-acute, leathery, 3-4 or more inches long. Racemes ascending, 9-12 or more flowered. Flowers among the largest in the genus, 4-5 inches across; sepals and petals white, the former lanceolate, the latter longer and broader, sub-rhomboidal, acuminate; lip nearly as long as the petals, three-lobed, the side lobes basilar, oblong, white with a large purple spot at the anterior margin; intermediate lobe cuneate-oblong, acute, white, purple at the base, as is the ligulate furrowed callus. Column white, bordered with purple on each side of the stigmatic cavity.

A beautiful species sent to us, in 1882, from the Papuan Institute, in Torres Straits, by the Rev. S. M. Macfarlane, to whom it is dedicated by Professor Reichenbach. Its discoverer was the late Mr. Hartman, of Toowoomba, Queensland, to whom botany and horticulture are indebted for many plants gathered by him for the first time in North Australia, and in the south-east peninsula of New Guinea, the supposed habitat of this *Dendrobie*. Owing to the exhausted condition in which the few plants that survived the long journey reached us, none have yet flowered, but one derived from another source flowered in the autumn of 1886, in the collection of Mr. J. N. Hibbert, at Chalfont Park, near Slough.

complete its growth, withholding water gradually while the period of leaf-falling advances; afterwards they get no water during the winter, only what is deemed sufficient to prevent shrivelling. They remain in a warm greenhouse through the winter until the buds begin to swell, when they are shifted into the stove. A plant that a little over a year ago cost 1s. 6d. furnishes us with eighteen of its distinctly pretty flowers this year.—W. S.

DENDROBIUMS.

PLANTS that have flowered must be watered with great care. Injury often results in their present stage from giving them too



FIG. 26.—DENDROBIUM MACFARLANEI.

DENDROBIUM PARISHI.

FOR amateurs who cultivate Orchids under the mixed plant stove conditions the above plant has much to recommend it, inasmuch as blooming is certain and culture easy when carefully attended with a due supply of water during the period of growth. It is of good constitution, and under generous treatment a good pseudo-bulb from 18 inches to 2 feet or more is available, that will give blooms from every joint without the risk of reverting to growth as is the case with many sorts, particularly *D. nobile*. The sepals and petals are of a dark lilac shade, having a crystallised surface sparkling in the sunshine. The lip is white, of a woolly nature, the edges recurving, giving it a distinctly striking appearance. It requires to be grown in a basket because the growth is strictly pendulous, and shows to greater advantage suspended from the roof when in flower. It grows well in fibrous peat, sphagnum moss, and charcoal or crocks, and shaded during the summer. In the autumn we place this Orchid with others in a greenhouse to

much. The roots of many are still inactive, and if they are kept in a wet state numbers are certain to perish. The reason many *Dendrobiums* decline in health after the first or second season is frequently owing to keeping them in a saturated condition as soon as flowering is over and the plants commence growing.

They need little water at first, a slight dewing with the syringe being ample in a moist atmosphere until the formation of new roots. As the roots and growth extend the supply of water should be increased. Plants would last longer and increase in strength if greater care was exercised during the early stages of growth, and again after the completion of growth. When *D. nobile* starts into growth it often pushes growths freely from the pseudo-bulbs. If these are not wanted for stock they should be removed, for they have a tendency to rob the growths that issue from the base. This old but very useful Orchid delights in a moist atmosphere. It refused to grow with us in a little house that is naturally dry, where *D. crassinode*, *D. heterocarpum*, *D. chrysotoxum*, *D. suavis-*

simum, *D. densiflorum*, *D. thysiflorum*, and others flourished. The plants were afterwards grown in a moist warm border of a plant stove, and they quickly attained their original strength.

MANURE FOR ORCHIDS.

It is no new thing to use manure in the compost for terrestrial Orchids. It has been recommended and practised in gardens for twenty years to my knowledge, and with the best results for *Calanthes*, *Bletias*, *Phajus*, *Cypripediums*, and others. Cow manure carefully prepared and added to the compost is a decided advantage with such plants as *Cypripediums* of a strong growing nature. It is best to use it near the surface, so that at the end of each season any that remains can be readily removed. Manure in a liquid state, made from steeping cow manure in water, has been repeatedly given to these plants with the most beneficial results. Soot water in a clear state is stimulating also. A bag of soot steeped in a tank with cow manure and used in a weak state is a splendid stimulant. We have tried its effects, not only on *Calanthes*, *Bletias*, and *Phajus*, but frequently on *Cypripedium insigne*. With the latter, plants as nearly equal in all respects as possible were selected, and some watered with the liquid during the season of growth, and the others with pure water only. The stimulant had the effect of producing finer growth of a deeper colour and larger flowers. This liquid is also good for *Cœlogynes*, *Lycastes*, and strong-growing *Zygopetalums*. We do not doubt that suitable artificial manures would also be beneficial to these plants. We have tried some that have been recommended for this purpose, but prefer the manure and solution that has been referred to. We have grave doubts, however, about using artificial manures in the compost for epiphytal Orchids. As a rule these manures are too forcing in their nature. We should certainly prefer weak liquid from cow manure. This we syringe amongst the pots and about the floors of the house, to be evaporated and taken up by the plants from the atmosphere. This note is intended as a warning. The successes in some quarters may lead to a wholesale system of feeding with manure and stimulants, and result in more harm than good. My advice is, Use manure and liquid to the class of Orchids I am considering cautiously. When we look at the excellent results attained by good culture without manure or liquid in the case of epiphytal Orchids we have grave doubts of any improvement to warrant the risk. In some cases—*Dendrobiums* for instance—larger pseudo-bulbs and foliage may have resulted, but whether this is an advantage remains to be proved. It is wise to experiment in this matter, for by so doing only can reliable knowledge be obtained. But before the practice is taken up generally it is necessary to know whether strong growths and bold foliage made under pressure by the aid of forcing artificials are likely to prolong or shorten the life of the plant.—ORCHID GROWER.

ROYAL HORTICULTURAL SOCIETY.

SCIENTIFIC COMMITTEE.—Present: W. T. Thiselton Dyer, Esq., in the chair, and Professors Michael Foster, A. H. Church, H. Marshall Ward, D. H. Scott, Messrs. G. F. Wilson, T. Francis Rivers, H. J. Veitch, W. F. Blandford, R. McLachlan, Dr. Oliver, and D. Morris.

Mealy Bug at Alexandria.—Mr. Morris supplemented the information already given by him respecting this new Egyptian pest by reading a letter from Mr. J. W. Douglas, to whom the specimens had been sent, stating that the coccids had proved to be not only a new species, but a new genus. It was proposed to describe them under the name of *Crossotoma ægyptiacum*.

Growth on Stem of Cattleya.—Mr. McLachlan reported on a peculiar growth on the stem of a *Cattleya* from Brazil. This was at first supposed to be of the nature of a cocoon, but a careful examination of the structure had shown it to be a gall. Professor Marshall Ward undertook to make further examination.

Sugar-cane borer at St. Vincent.—Mr. McLachlan drew attention to a disease in Sugar-cane at St. Vincent, where in some localities about 25 per cent. of the crop would be lost this year. According to Mr. Herbert Smith, who had examined the canes, a beetle of the family *Scolytidæ* and the larva of a moth, were concerned. It is probable that the beetles only enter the canes by the exit holes of the moths. The moth is probably a widely spread species already known to attack Sugar-cane into other countries. The affected canes should be burned, and steps taken to destroy the moth in the localities specially frequented by it.

Disease of Orchids.—Mr. Morris exhibited several specimens of a *Cattleya* attacked by a fungoid disease of apparently a very virulent character. From a specimen received about a fortnight ago Mr. Masee, at Kew, had infected two or three healthy plants, and in three days the whole of the pseudo-bulbs had become diseased. Specimens of similarly affected plants were sent by Mr. James Douglas from a gardener who was anxious to know if there was any remedy, as he feared his collection was in danger of being destroyed. The Committee was of opinion that the disease, whatever the cause, was of a very virulent character. It was not the ordinary "spot" so well known to Orchid growers. The

specimens were referred to Professor Marshall Ward, who had already given some attention to the subject.

Orchid Hybrids.—Mr. H. J. Veitch exhibited *Cypripedium Lathamianum* ×, raised first at the Birmingham Botanic Gardens, by crossing *C. Spicerianum* ♂ with *C. villosum* ♀. Messrs. Veitch had raised similar hybrids, and had, moreover, raised hybrids from the reversed cross. Plants from all the three sources were shown. These agreed so closely in all essential points that they must bear the same name. The fact of plants obtained by crossing, and also by reverse crossing, producing seedlings of almost exactly the same character, is very interesting. Similar results have been obtained by Messrs. Veitch in crossings which have produced *Cypripedium Sedeni* ×, and *Fuchsia Dominicana* ×.

Mr. H. J. Veitch also exhibited a new hybrid *Dendrobium*. The seed-bearing parent was *D. japonicum*, and the pollen parent *D. Wardianum*. The hybrid *D. Wardiano-japonicum* had smaller pseudo-bulbs than *D. Wardianum*, but the flowers were nearly those of *D. japonicum*, but larger and with broader segments. They were also highly scented, as in *D. japonicum*.

Canker in Apple Trees.—Professor Marshall Ward brought before the Committee specimens of Apple trees badly affected with the so-called canker, on which there were numerous red perithecia of a *Nectria*. It is probable that the initial injury in this case had been caused by frost, and that the *Nectria* had established itself in the cracks thus formed.

Picea nobilis.—Mr. James Douglas forwarded branches of *Picea nobilis* affected by gouty swellings, due probably to the attacks of an *Acarus* (*Phytoptus*), or to *Æidium elatinum*. Professor Marshall Ward kindly undertook to examine the specimens.

London Fogs.—Dr. Oliver and Professor Scott presented an interim report on the investigations undertaken by them respecting the effects of London fogs on plants under glass. Specimens of Orchids affected by fog had been received from Messrs. Veitch & Son, Chelsea; and of Tomato plants from the Superintendent of the Royal Horticultural Society's Gardens at Chiswick. On the suggestion of the Chairman it was decided to take up an investigation of the chemical constituents of London fog, and trace the exciting causes of the injury to plants. The question was a very important one, and demanding considerable time and attention. In order to carry out the work under advantageous circumstances, it was resolved to make application to the Government Grant Committee of the Royal Society for pecuniary aid.

[We did not receive the above report in time for insertion in our last issue.]

PLANTS FOR A VINERY WALL.

"M. G. D." (page 108) will find *Plumbago capensis* one of the best plants he can have for covering the back wall of his vinery. The temperature required for the Vines just suits this plant, for it does not mind shade, and both grows and flowers well under the conditions it has to endure in a house solely devoted to Grapes. We have it planted at the base of our Muscat vinery; the wall is 12 feet high, the border about 18 inches wide, and as much in depth. The soil is mainly composed of loam, leaf soil, and charcoal, with a sprinkling of finely ground bones, and receives a similar top-dressing annually. When the plants were placed out they were encouraged to grow freely, the shoots extended, and were tied to the wires or fastened to the wall their whole length, with a view to cover it as quickly as possible. When this has been effected all the additional shoots, which will grow away from the wall, should be allowed to hang downwards in a free manner, as trusses of bloom will be borne at the point of each shoot. After the first supply of flowers during the summer the shoots will make fresh growth, which will continue to produce flowers more or less well into the autumn. Abundance of water, both at the roots and over the branches, is necessary to promote free growth and cleanliness, as without it the leaves are sure to become infested with red spider, which not only spoils their appearance, but checks the free growth, upon which the season's flowers depend. When well established frequent supplies of liquid manure to the roots will be of much service in assisting a full development of vigorous shoots, deep green foliage, and abundance of large trusses of bloom.

From October until Christmas our plants are subjected to rather rough treatment. The space being required for *Chrysanthemums* we prune all the current year's shoots to within one or two eyes of the wall; from those remaining shoots are freely produced the next spring. The wall is then covered with tall *Chrysanthemums*, the leaves of which completely hide the *Plumbago* from sight. This seemingly rough treatment does not interfere with the success of the plants the next year, as when the vinery is put into order and "started" about the middle of February young shoots are freely made, and never fail to flower well. Sometimes green fly will attack the points of growth, and at times, perhaps when fumigating the house with tobacco smoke is out of the question owing to the Vines being in bloom, recourse must be had to syringing the *Plumbago* with soapy water or other insecticide, taking care that it is not used in too strong a state. I have seen a number of flowers spoilt by too strong an application of lemon oil, therefore I should like to caution the inexperienced against a mishap of this sort. The young leaves are tender, owing to their being grown in strong heat and without the aid of much sun to make them hardy, as under the Vines very little of the sun's influence is felt.

Up the back wall of a late vinery we grow Tomatoes, and manage to secure some fair fruits during June and July by having the plants 2 feet

high before they are placed against the wall; after that time the shade from the Vines is so dense that nothing but leaves and stems are grown. By starting the Vines about the 1st of March the Tomato plants are enabled to make a good growth and set some fruits, the plants being raised from seed sown early in the year before all the space devoted for the growth of the Vines is covered with foliage.

Asparagus tenuissimus is a capital plant for covering a back wall in a vinery, where greenery only is wanted. The feathery shoots of this climber are most useful for supplying "backing" to buttonhole bouquets or sprays, growing as it does in exactly the right form for this purpose; or for mixing with flowers in small vases it is good, being of such a deep green colour. But this variety cannot be compared with *A. plumosus nanus* for vase or epergne decoration. For covering walls as here described it is first rate, as it grows rapidly, sending out thick shoots from the base, which will quickly mount to the top of a 12 foot wall. Abundance of water is needed at the roots to ensure freedom of growth. If this attention is neglected the minute needle-like leaves will quickly turn brown and fall off, rendering them quite unfit for use, and disfiguring the appearance of the plant also. A compost of two parts fibry loam, one part of peat and leaf soil, with plenty of sand and charcoal, using the loam and peat as rough as possible, will suffice to grow this plant well. As before stated, abundance of water is essential to success. To hide the soil in which this *Asparagus* is growing we plant annually in the spring *Panicum variegatum*, which grows freely and makes an agreeable contrast to the deep green of the climber.

Hoya carnosa will succeed in the same position with a soil composed mainly of peat, leaves, a fourth part of loam, and a good dash of bone meal. When planted out and given plenty of water, both at the roots and over the foliage to keep it clean, long shoots are quickly made; the stronger and greener they are the more numerous and better will be the trusses of bloom.

Some persons attempt to cultivate Figs on back walls in the vinery, but with one exception I have never seen any that could be called successful. Enough of the sun's rays are not obtained to ripen the wood of the Fig trees, which need sufficient sun to produce a crop of fruit.—S.



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY. (Continued from page 140.)

HYBRID TEA ROSES.

THESE should be classed with the H.P.'s, according to N.R.S. rules, and rightly, for they are Hybrid Perpetuals, and, as we have seen, a good many of that class have probably some strain of the Tea Rose race in them. For instance, Her Majesty and Lady Mary Fitzwilliam are acknowledged to be crosses from the Teas, yet no one would think of reckoning them as anything but H.P.'s. But I think I have omitted two or three which are worthy of notice.

Cheshunt Hybrid (G. Paul, 1873) was the earliest of these crosses to be recognised as a Hybrid Tea; probably the races of Victor Verdier and La France, and certainly that of Gloire de Dijon, ought to have been added, if a new class was thus to be made. Of very vigorous (climbing or pillar) growth, and fine foliage, hardy and strong, not liable to mildew or to injury from rain. The blooms generally come fairly well and early, but they are not good enough for show, and are wanting in brightness of colour, and a dull Rose is surely a poor thing, however many good colours it may have.

Grace Darling (Bennett, 1884).—Sent out as a Tea, but pronounced to be H.T. by the National Rose Society. Some authorities, however, do not acquiesce in this judgment. Those who pronounced against it as a pure Tea were guided, I suppose, by the foliage, which certainly seems to indicate a cross; but so, at the same time, do the leaves of the Gloire de Dijon race, which, though more vigorous, appear to me very similar indeed. And when it is taken into consideration that Gloire de Dijon, by its strong growth, shows another departure from the pure Teas, which is not shared by Grace Darling, it seems inconsistent that the former should be admitted and the latter excluded. Of good growth for a pure Tea, not specially liable to mildew, or more injured by rain than most of the Teas, but it will not be seen to advantage except in dry weather. Rather wanting in stoutness of petal and fulness of centre, but comes well and opens readily. Of good shape and colour, and fair size, but not large enough to be shown among H.P.'s. Very free blooming and a good autumnal. Not a good laster, and requires good soil and generous treatment.

Reine Marie Henriette (Levet, 1878).—Of very strong climbing growth, with good foliage; not much liable to mildew or to injury from rain; very free flowering and a capital autumnal. Being brighter than Cheshunt Hybrid, this Rose has some claim to be considered the best of the climbers; but two of the three Waltham climbers (W. Paul, 1885) seedlings from Gloire de Dijon, of which No. 1 is the brightest and No. 3 the best shaped, are also well in the running.

NOISSETTES.

These are hardy, very strong growing, evergreen Roses, blooming in clusters. The flowers are naturally quite small, but almost all of them have been further crossed with the Tea race, which has the effect of much increasing the size and beauty of the blooms, but at the same time rendering the plants liable to injury from frost. All these Roses, and the pure Teas, require a rich, but not necessarily a strong or heavy soil, such as is most loved by the majority of the H.P.s. The true Noisette is itself said to be a hybrid between the Musk and Tea or China Roses; so that it seems rather difficult to decide as to what is a pure Noisette. Of those mentioned in the N.R.S. catalogue, Aimée Vibert (Vibert, 1828) with clusters of small white flowers, and Ophirie (which see) show less of the Tea cross than the others.

The true and Hybrid Noisettes have a characteristic custom, which is shared by the Gloire de Dijon race, of blooming from nearly all the buds of the long secondary shoots of the previous year, which should be left unpruned. Many of them will hardly bloom at all if closely pruned.

Caroline Kuster (Pernet, 1872).—This is a Hybrid Noisette, but for all practical purposes it might be classed among the Teas, to which it shows a strong affinity, as it is not of climbing growth, and will flower as freely as any Tea Rose if closely pruned, which other Noisettes will not. Of strong good growth for a pure Tea, with small foliage; not very liable to mildew, but, like all Teas, is injured by rain. The blooms sometimes come divided, especially the strongest ones, and they are deficient in colour, but good in petal, shape, fulness, lasting qualities, and size. This is a very accommodating Rose. A strong established plant in good soil may be used, either by very slight pruning and not thinning the buds; as a most useful hush to "cut and come again" at for serviceable pale yellow buds throughout the season; or, by severe pruning and rigorous disbudding, to produce a few show blooms of the first quality and the largest size, fully capable of being staged among our best H.P.'s. Free blooming and a good autumnal, does well as a dwarf, and for a Tea Rose fairly hardy.

Céline Forestier (Troillard or Leroy (?), 1858).—Of good growth, but not sufficiently lengthy to make a good climber. The wood and foliage are very distinct, the latter being evergreen and particularly bright and shining. Will sometimes bloom as a maiden or if closely pruned, which many of the Noisettes will not do. Not liable to mildew or much injured by rain. It blooms in large clusters, which should not be thinned, for no treatment can make a show Rose of it owing to the flat open shape, and the prettily coloured buds add much to the beauty of the truss. A free bloomer and fair autumnal; tolerably hardy, but liable to injury in severe frost; of pretty good constitution, and doing fairly on light soil.

Cloth of Gold (Coquereau, 1843).—Of very strong climbing growth for a south wall, liable to mildew, but can probably stand a shower. Here are manners, or rather the want of them, with a vengeance, for this Rose is unfavourably known as being by far the shyest bloomer we have, and though acknowledged to be an excellent bloom is not to be found in the N.R.S. catalogue at all. I once had a fine plant of it, which grew well in the sheltered angle of a south wall. Only once in eight years did it form a single bud, and that was after a very hot summer, during which the wood must have been not only ripened but almost roasted. About half a dozen buds came on that occasion, and as soon as they were clearly formed I stopped every other shoot and strengthened the blooms in every possible way, determined to see, even at the risk of the death of the plant, what this Rose is at its best. They were fine yellow flowers indeed, but it happened that I had also just at that time a large and splendid crop of Maréchal Niel on another south wall. I could detect but little difference between them either in shape or colour, even when closely compared, and came to the conclusion that this variety, with its absurdly shy manners, was not worth growing. It is said, however, by those who used to grow it twenty-five years ago that it bloomed freely and well at that time, but that it received a check in a certain severe winter which affected the constitution of the whole variety. This seems to be possible if we may judge from analogy, but perhaps jealousy was a hidden trait among its manners and customs, and that it "shut up" from envy at sight of the rising star of 1864, Maréchal Niel. It was stated, however, at the Rose Conference, and a photograph was shown to substantiate the evidence, that the Cloth of Gold Noisette flowers with great and long-continued freedom in Australia. That may be; in this country it certainly does not seem wise to waste time and space upon it. I heard some time ago, with respectful wonder, of an amateur who was about to grow the Teas and Noisettes on a large scale, and who ordered the different varieties of the hundred, and when it was added that among these were a hundred of Cloth of Gold the wonder increased, but the respect, I fear, diminished.

Lamarque (Maréchal, 1830).—This is a Rose which was highly prized thirty years ago, when good varieties were few. Of very strong climbing growth, bright but small foliage, not thoroughly evergreen. Little liable to mildew, but not liking rain. The blooms are large and effective, but open and flat, and not fit for show. Flowers very freely once, but the secondary bloom on a wall is very slight. The fragrance is very good and most distinct. I have never seen it grown except on a south wall, and it is hardy there against anything but exceptional frost.

L'Idéale (Nabonnand, 1887).—Too young to speak fully of, is not of climbing growth, and bids fair by its new combination of colours to become a successful rival of W. A. Richardson.

Maréchal Niel (Pradel, 1864).—Of very strong climbing growth, with magnificent evergreen foliage, very liable to mildew, and subject to injury from rain. The blooms come often divided or even quartered on a standard, much better on a south wall, but are apt to lose colour in the sun, and nearly always perfect under glass. A most splendid Rose, the best of this section and of all the yellows, and with strong claims to be called the Queen of all Roses. It is grand in petal, centre, shape, colour, lasting qualities, and size; a very free bloomer, and though on a south wall or under glass the second blooms are not numerous, it blooms freely as a standard throughout the season. Like all the Roses of this class the best blooms come on the long strong secondary shoots of the previous year, which should be left nearly of full length; but there is a good deal of the Tea race in *Maréchal Niel*, as shown by the strong characteristic scent, and by the fact that it will often bloom as a maiden, which many of the Noisettes will not do. A good authority even excludes it from the Noisettes, and classes it among the strong growing or Dijon Teas. It does not do well as a dwarf or on its own roots, and is decidedly tender, being liable to be injured or killed outright by sharp frosts. This variety is easily forced, and much grown for the market, the best method of training and pruning under glass to get a fine crop of these splendid blooms in early spring having been already described in the Journal. It may here be added that to ward off mildew we must not be afraid of keeping the ventilators entirely shut when there is any cold wind. This grand Rose has one piece of bad manners completely to itself—a liability to canker, especially at the juncture of stock and scion. Many remedies have been suggested for this, among which is the employment of *Gloire de Dijon* as a stock, which is said to suit very well. But there is no cure for canker, and it is best to attempt none. Good strong young plants are cheap, and soon come into bearing; but when putting in a new plant where a large Rose has stood, remember to take out a good deal of the old soil, and replace it with fresh rich stuff in which Roses have not been grown.—W. R. RAILLEM.

(To be continued.)

EUCCHARIS AND BULB MITE.

I HAVE taken great interest in the articles that have appeared in *Journal of Horticulture* respecting the subject to which this heading refers. I also have been waging war against the same minute but numerous enemies with beneficial results. After reading Mr. Taylor's marvellous success, I feel constrained to say a few words on the subject. I think the same as your correspondent "M. D.," page 118, that Mr. Taylor having grown three partly decayed *Eucharis* bulbs to fill a 10-inch pot is no bad record for one year. I am surprised to see so many gardeners scout the idea that the bulb mite can be overcome and easily destroyed. Nevertheless it may, provided the operator can get at them with his insecticides, as I shall be able to show later on in this article. But it will not be accomplished by the method described by Mr. Henry Porter at page 140—viz., by washing them in warm water and by good cultivation. Good cultivation is quite out of the question if there is a mite left about the bulbs, for I find they increase at an enormous rate, and my experience teaches me it is impossible for the bulbs to make any headway, as the mites are very partial to the young roots, and quickly destroy them, causing the bulbs to lie dormant and eventually to die. Perhaps Mr. H. Porter will kindly state how he eradicated the mite from the centre of the bulbs by washing them in warm water, for it is essential that this be done before the good cultivation can effect a cure. When your correspondent says good cultivation, does he infer that we are all had *Eucharis* growers? For I believe there are few collections that have not been troubled with this pest. I am inclined to think Mr. Porter's bulbs could not have been very badly infested with the mite, for had they been such as I was called upon to examine the other day they would have been dead, or at least in a worse state by now than when he washed them in warm water. It would have been impossible to get at the enemy by any other means than soaking them in some such liquid as petroleum or Fir-tree oil, the former being a sure destroyer of all insect life wherever it can be applied, but in no case should the bulbs remain in the mixture of petroleum more than one hour, or they would be destroyed.

The bulbs I mentioned above, which were so badly infested, were attacked, it appears, in the flower stem after being cut down, and had eaten their way into the inner part of the bulbs, and no washing could ever dislodge them. Then what is to be done? Destroy the bulbs as many advocate, or "bake, stew, or poison them?" My answer is, Neither; but carry out the following details, and success will follow, as I have proved in three collections of *Eucharis*, also with *Amaryllis*, *Vallotas*, with outdoor bulbs such as *Hyacinths*, *Tulips*, &c.

After shaking the bulbs from the soil wash them in a little clear water, so as to see the affected parts. Then if only infested on the outside, roll them in new slacked lime and soot, and allow them to remain in this condition for two or three days. After this, wash them in one gallon of water, to which add a quarter of a pint of petroleum and a good piece of soft soap, allowing them to remain in the same for a short time; but if the mite has penetrated the bulb make the wash stronger, and add a little of the fresh lime to the solution, allowing the bulbs to remain in it quite an hour. When potting them again, in all cases add a little lime and soot at the base of the bulbs. This I find essential, as it prevents the mite (should there be any left still alive) from settling at the base, and destroying the roots as they commence growing; and

with an occasional watering with soot and lime water the pest will be effectually destroyed, and the plants again brought to a state of perfect health.—ALFRED BISHOP.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

A MEETING of the General Committee was held in the Horticultural Club room, Hotel Windsor, Victoria Street, S.W., on Wednesday, February 19th, at 4 P.M., Mr. T. Francis Rivers in the chair, and there was good attendance of members. After the Honorary Secretary had read the minutes of the previous meeting, thirteen members were elected, and some additions were made to the Executive Committee. The place of meeting for the Committee during the year next came under consideration, and in accordance with a resolution passed on a previous occasion the Rev. H. H. D'Ombraïn had been written with the object of making some arrangements for holding the meetings at the Horticultural Club. A reply was now read in which it was stated that "the Committee gladly accedes to the proposal."

Letters were read from J. Storey, Esq., Town Clerk, Leicester; Mr. J. Burn, Abbey Park, Leicester; Mr. Henshaw Russell, Crystal Palace; Mr. E. Carpenter, Brighton, and Mr. W. Holmes, Hackney, with regard to the Conferences of 1890, and after some discussion, it was resolved that the Association should hold the following meetings to deal with the subjects named:—Friday, June 27th, Royal Aquarium, Westminster, Strawberries and bush fruits; Tuesday, August 5th, Leicester, general fruit culture for profit; Friday, September 5th, Crystal Palace, Plums and stone fruits; Thursday, September 11th, Brighton, general fruit culture, Grapes and Tomatoes; Wednesday, October 15th, Royal Aquarium, Apples. Offers of papers upon several subjects had already been received from members and friends of the Association, but the full programme will be announced later on.

It was resolved that the General and Executive Committee meetings be held in the Horticultural Club room at 5 P.M. on Thursdays, March 6th, April 3rd, May 1st, June 5th, July 24th, August 21st, October 2nd, November 27th, and December 18th.

Communications were read from provincial Societies with regard to providing lectures at their meetings, and the Secretary was directed to communicate with several experienced fruit growers on the subject.

Mr. T. W. Beach, Brentford, exhibited a sample lamp which he had employed for suspending amongst his fruit trees to catch the winter moth and other pests. It was an ordinary petroleum lamp, furnished with an extremely wide shade, the under surface of which is white, and is covered with a mixture of grease and tar. The moths fly to the light, and coming in contact with the shade are held securely by the adhesive mixture. A lamp of a similar kind has been tried on Lord Sudeley's estate with much success, and attention has been called to the subject in some provincial papers. Mr. Beach submitted a number of letters and clippings dealing with the matter, and was accorded a vote of thanks for his communication. Mr. T. F. Rivers referred to the loss the Association and the fruit interest had sustained by the death of Mr. Wildsmith, and it was resolved that a letter of condolence be sent to Mrs. Wildsmith.

TUBEROUS BEGONIAS.

At the February meeting of the Sheffield Floral and Horticultural Society a short paper on the above subject was read by Mr. W. Collier, who, at short notice, had taken the place of Mr. Herringshaw, who had been prevented by serious illness from attending and giving a paper on the same subject.

Mr. Collier said great improvements had taken place in the Tuberous Begonias. At one time we had plants that grew 2 or 3 feet high with small flowers, now we had larger flowers and dwarfier plants. Nearly every seedsman has his "celebrated strain" of Begonias. We are indebted to Messrs. Laing, Cannell, and many others for the great improvements that have been effected in this showy plant. The usual way of commencing to grow Begonias is by raising them from seed. If plants are wanted to bloom the same year, the seed must be sown early in January. By sowing then good sized bulbs are produced that will give a few flowers in the autumn. Prepare 6-inch pots, well drained, and fill them with some light soil, leaf mould, sand, and a little small peat, making the compost moderately firm, and sow the seed, which will be found to be very small, evenly on the top.

Slightly cover the seed with some sandy compost, and, after gently watering it, place glass over the pot, which should be plunged in a hothed or in a propagating frame, and see that the soil never becomes dry. The seedlings will come up very freely, and as soon as they have made a small leaf or two carefully lift them out of the pot with a small stick and transplant into fresh soil and pots. Shade from sun, and they will soon grow freely. They may be grown in a hothed outside, plunging the pots in ashes or cocoa-nut fibre, which will not necessitate so much watering. They will bloom a little the first year, but the great object is to raise a stock of tubers for the following spring. When growing them afterwards they should be started about the beginning of February. I keep the plants underneath the stage in the pots they bloomed in the previous year. Some people shake the tubers out, but I think that they keep better in the pots during the winter time, as the greenhouse stages are very large slates. In an ordinary greenhouse with lattice stages this plan would not do, as too much wet would reach the tubers.

As soon as the plants commence growing at the top shake them out. If you cannot get a good fibrous loam, have half loam to half peat, with leaf mould, charcoal, and a little sand. This will make a good compost. Start the tubers in small pots, only large enough to get the tubers in. If placed in a hotbed they will not require so much water, but ainery is a good place to start them in, plunging the pots in a box and placing them on a shelf. After potting the tubers need very great care in watering, as if too much is given they will soon decay. They require much the same treatment as Gloxinias. As soon as roots are seen to push from the drainage it is time to place them into larger pots, for if not kept repotted they have a tendency to push up their flower spikes. At all times keep them near the glass. In summer they will do well in an ordinary greenhouse. If plenty of heat is not at command in spring do not start them before April, and give them the same treatment as Zonal Pelargoniums. If they are kept growing on they may be had of any size, but when they are root-bound they begin to flower. In this neighbourhood they do not succeed well outside, but in Lincolnshire they do. In a naturally light soil at Branston Hall they were planted similarly to Potatoes, and they grew and flowered remarkably well. Some people start them in pots and then plant out. When the plants are well established be careful not to give too much water. They may also be propagated from shoots with a little heel attached, and from cuttings of the tops of the shoots.

Discussion took place on the advisability of watering the soil in the pots before sowing the seed, which was recommended, and on the method of potting, Mr. Collier advising that the surface of the soil in the first potting should be the same in all subsequent pottings, not burying the tubers deeply. Mr. Collier was thanked for his paper.

GARDENERS OUT OF SITUATIONS.

WITH your correspondent, Mr. Bishop, page 160, I agree that a Gardeners' Self-Help Society is desirable, and I should be pleased to join any well matured project having that object in view; but at the same time the congested state of the supply and demand for gardeners is not new, and in considering the matter it must be allowed that the disease is chronic, and should be remembered in assisting to choose the callings of our sons, to, if possible, lessen the supply. Although the evil is an old one, if a remedy can be found it should be tried. Mr. Bishop seems to think I am over the stile and out of the wood. Of course, that is a private and personal matter, but I trust I may never be out of sympathy with a brother in distress, and a gardener in particular. Such sympathy on my part would prevent me from withholding what I knew from personal experience to be true. And I likewise agree with the American motto, "Not to swop horses whilst crossing a stream." Further, not to drop the bone with a little meat on it offered by the nurserymen (which has kept many a good man from going wrong), at least not before the shadow of a Self-Help Society has become a substantial reality. Mr. Bishop seems to think a man should be able to dictate his terms of agreement and rate of pay when seeking temporary employment with a nurseryman, which I think under the circumstances most unreasonable. I consider to take the half loaf with a good grace betokens better manners. Whilst looking forward to being generous to our brethren of the craft in the future, let us not forget to be just to old friends of the past, or to despise the bridge that has carried many of the craft over. I hope that the day is not far distant when a system of national insurance for workers will be inaugurated on the same principle as that which recently has become law in the German empire.—R. M.

THE ACTION OF ROOT GROWTH.

[By Dr. G. M. Lowe.]

AT the last monthly meeting of the Lincolnshire Gardeners' Association, held at the School of Science, Lincoln, the Hon. Sec. (Mr. A. Wipf) read the following paper on "Root Growth," which had been prepared by Dr. G. M. Lowe, who was unfortunately unable to be present:—"There are three chief peculiarities about the action of roots, that, although well known, require to be kept in view in considering the subject:—First, their tendency to strike towards the centre of the earth (geotropism); secondly, their tendency to recede from light (apheliotropism); and thirdly, their extreme sensitiveness to contact. The action of gravitation need not be discussed, as it has been proved to have little or no influence on the root direction. Both Sachs and Darwin have demonstrated that root tips, like those of the growing shoots of plants and tendrils, continually move in a circular or spiral manner, searching their way, as it were, in every direction, but guided by the influences above described. If a Bean, for instance, be allowed to germinate on the surface of the ground, the young root (radicle), as soon as it protrudes from the seed coats, begins to circumnutate, and is at once acted on by the force called geotropism, and bends down from whatever position it may be accidentally placed, towards the ground. Thus, if it be emitted on the upper surface of the seed, and its tip therefore is vertical, it cannot be acted on by gravitation, but, nevertheless, it curves over to one side and takes the shortest course downwards; it recedes also from the light, and, if other conditions are equal, will turn towards the shady side of the seed; and, further, if it meets with any obstacle, even though it be the thinnest possible tinfoil laid on damp sand, it will turn off at right angles and glide over it without leaving any impression. When the root tip reaches the soil surface it seeks to

penetrate it at some convenient spot, such as a minute crevice, a worm hole, or, if the soil be loose, between its particles. If the surface be dry and the Bean lying loosely, the latter will be raised up, as is often seen when large seeds are only lightly covered: but presently the root develops hairs in its surface and these attach themselves to irregular particles of soil, and so enable the growing root to force its way downwards; in this process the rotatory or zigzag movement of the advancing tips greatly assists.

"The apex of the growing root, it must be observed, is protected by the root cap, and when once firmly attached to the surrounding earth has a penetrating pressure (according to Darwin) of at least a quarter of a pound; but whilst thus increasing in length it increases also in thickness, pushing away the damp earth on all sides with a force equal to 8 lbs. The primary root also emits secondary ones, which are only slightly affected by geotropism, and so proceed sub-horizontally; their tips also rotate, and are sensitive to contact. These secondary rootlets again send out tertiary ones, which are not at all affected by geotropism, and so protrude in all directions, and thus the whole soil within reach is searched for nutriment. The aerial roots of the Pothos, or *Monstera deliciosa*, have afforded me excellent opportunities of observing some of these peculiarities. In this plant, which in its natural habitat grows over lagoons and tropical marshy localities, one thick and many smaller roots are thrown out opposite each leaf; the larger roots, which are about as thick as the little finger, grow rapidly downwards, and can be dealt with at will. Directly they strike damp soil they throw out numberless rootlets, and if they reach a tank of water will speedily take possession. If near a damp wall they incline at once towards it, and become attached to it in the same way as the root hairs of the Bean. This process is peculiar, and worthy of study. The damp surface seems to signify the outer envelope of the root stem, which then flattens itself against the surface and becomes glued as it were to it; the object seems to be to absorb water. Direction is also influenced by vapour, and again by contact, for if a card is placed on one side of the tip the latter recedes in the opposite direction. Again, if a pendent root be raised horizontally over the edge of any object, as a flower pot, the tip immediately curves downwards at an acute angle at the point of contact only. Light also acts on the principle before mentioned. I have been experimenting on these roots with a view to ascertain the action of various chemical substances on the colouring matters of the leaves, and endeavoured to receive the descending roots in tall glass vessels of fluid fully exposed to the light, but found that when the liquid was colourless the root refused to enter, no matter how tempting the contents might be from a plant food point of view, whilst a jar covered with black cloth, or filled with a strong solution of Judson's blue dye, was rapidly filled with rootlets."

A vote of thanks was tendered to Dr. G. M. Lowe for his paper.

GARDENING AT KEW.

I READ with much interest the excellent papers on Gardening in your last issue of the Journal (page 157). While agreeing in the main with Mr. Lewis's views there is still one point on which I think he is under a misapprehension. He says that the skilled workmen employed in the Royal Gardens, Kew, are to be regarded more as specialists than as gardeners proper. Now, that I consider is quite a fallacy. True, the departmental system is here in full operation, but the young men are by no means confined to one department. When they have become familiar with the details of cultivation of one class of plants they can on application be removed to another department, and have thus the opportunity of becoming practically acquainted with all the details of management of the largest collection of exotic plants in the world. Having only one class of plants under their charge at a time they are enabled to pay more attention to them than they otherwise could, and thus act on the good old rule of having "one thing at a time, and that done well." Further, a certain proportion of time is allowed the gardeners every week that they may go round the various departments and take notes, while there are also lectures on the sciences bearing directly on horticulture, so that they have a better chance of becoming good all-round gardeners than those in private places.

Mr. Lewis may not be aware of the fact that no gardener is admitted to Kew without at least five years' practical experience in good places. Having been employed in the Royal Gardens for some time, I can speak from personal experience. I hope you will find space for these lines, as the mistaken idea that the gardeners at Kew are specialists may be detrimental to the interest of the young men when they come to seek another situation.—R. G. K.

DRACÆNAS.—Plants of *gracilis*, *Goldiana* and *Lindeni* that have grown too tall may now have their heads rooted. These may with safety be cut off, and the heads rooted without losing a leaf if the pots can be plunged in a close frame in a temperature of 65°, and in bottom heat 10° higher. It is necessary to cut them where the wood is soft, as when cut where the wood is firm they are months before they root and often lose their foliage. This can be quickly tested by inserting a few eyes below where the head has been removed. These should be numbered 1, 2, 3, and so on as they are taken off downwards, and it will be found that the first below the head will form roots and commence to grow long before No. 3, and so on according to the firmness of the wood. It is a good plan to insert two or three eyes with a leaf attached from each plant after the removal of the top; it is a quicker

way of raising stock than waiting for the plants to produce side shoots. This appears the only reliable method of propagation with those named. Varieties of Cooperi, terminalis, and others that have had their stems thoroughly ripened, may be cut up into lengths of about 1 inch; if the stems are strong these may be split down the centre. These portions of stems must be sorted, placing those nearest the root in pans by themselves, for they invariably start into growth first. They may be laid amongst sandy soil that is in an intermediate state for moisture, and covered with half an inch of soil. The pans should be plunged, and the surface covered with cocoa-nut fibre refuse to prevent evaporation, and thus delay the necessity of giving water. If kept wet early in the season they are certain to decay.

PRIMULAS AT READING.

FEW plants generally employed for ornamental purposes alone have been so much improved and diversified in recent years as *Primula sinensis*—the Chinese Primrose, as some prefer to term it. The usefulness of the plant has assisted greatly in extending its popularity, and it now takes a foremost place amongst those most prized for winter flowering. Though requiring care it is not by any means difficult to grow, or to grow well, and it is not surprising therefore that seedsmen recognising the potentialities of the plant have given it a large share of attention with correspondingly favourable results.

During the past two months Messrs. Sutton & Sons, Reading, have had a display of Primulas in their nursery most creditable to the firm, and representing in an interesting manner the progress that has been made within the past ten or twelve years. Ever since the Chinese Primula began to be appreciated as a garden plant Messrs. Sutton and Sons have given it their close attention, and they may fairly claim to have contributed in no small degree to its present popularity. In 1879 the firm obtained a first class certificate from the Royal Horticultural Society for a variety distinguished by the richness of its colour, and named Ruby King. This was the forerunner of a series of fine varieties; and though the one named is still unsurpassed in its class, an astonishing diversity in shades of colour, form, or size of flower, habit, &c., has been introduced, and numbers of certificates have been awarded to the types thus formed. An admirable example is furnished of what can be effected by continued well-directed efforts, and it also shows that capital, labour, and intelligence are indispensable in producing such results. The beautiful display of bright or soft-tinted Primulas indicates the accomplishment of a great task, and a reference to what may be termed the "stud book" shows the manner in which it has been effected. These records of skill in experimental crossing are unique, and it is easy by their means to trace back the parentage of any variety for ten or twelve years. This was actually done for my edification in the case of one variety, and proved how carefully the system had been devised and followed, for the lineage was traced most readily, each parent in every generation being given.

It would be unnecessary to refer in detail to the many varieties, they are so accurately and fully described in the catalogue that it would be superfluous, but a few notes will suffice to indicate the lines upon which most of the improvements have been effected. First as regards the flowers, we find that they have been much increased in size, the substance improved, and consequently their duration prolonged; the form has also been rendered more symmetrical and less "starry" than was the case with the earlier varieties. The colours have been diversified, and it is here that the advance has been made, for from pure white, through blush, rose, red, crimson, and purple to blue, the tints are innumerable, and all that is wanting is a yellow variety, and there is a prospect that this may be secured at some time. Of course there is a repetition of nearly all the colours secured in double flowered varieties, many of which are most useful for cutting.

In habit and foliage much has also been done to increase the variations from the original type. The plants are now strong and compact, the leafstalks relatively short, the flower trusses being borne well above the foliage, but not sufficiently so to give them a drawn appearance. The foliage imparts much character to the plants, and the two broad classes of varieties are those with fern leaves, and those with round or plain leaves, but to these can be added the varieties with leaves crisped and curled at the margin, while other classes are being formed, one with leaves of an extremely dark metallic appearance.

Attention has been given in the past few years to a prolongation of the season of flowering, not only by successional seed sowing but by raising varieties that have a marked tendency to flower either early or late. Much success has attended these efforts, and several have been fixed that assist materially in this direction. Plants of the perpetual varieties raised from seed sown at the same time and treated in every way identically have shown a difference of six weeks to two months in their flowering periods.—VISITOR.

MAQUI BERRIES.

THE Maqui is a small evergreen tree or shrub (*Aristotelia Maqui*) common in Chili along the course of torrents and in shady, mountainous woods. It belongs to the Linden order (*Tiliaceæ*), which abounds in species, the inner bark or bast of which affords fibre of more or less value. The most important are jute and the linden from which the well-known Russia matting is made. The Maqui also affords a fibre which is used in Chili for cordage. It is easily cultivated in gardens

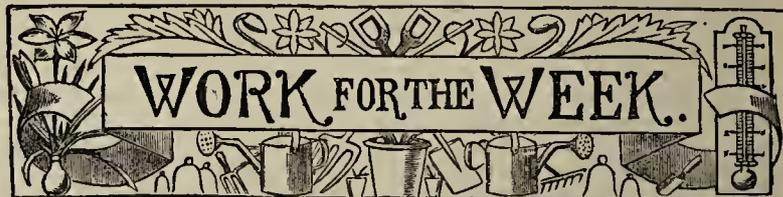
in the south of England, and at Kew grows vigorously with the protection of a wall. Whether its cultivation for the production of fibre would pay is doubtful, looking at the profusion of excellent fibre plants which are not woody which are now known. In Chili the fruits of the Maqui are eaten either fresh or preserved in different ways. Mixed with Grapes, a wine is also made from them. The shrub varies with either dark purple or greenish white berries; the latter are preferred in Chili.

A curious industry has sprung up of late years in the collection and export to Europe of the berries for colouring wine. For the particulars contained in the following letter Kew is indebted to the Consul-General for Chili. The Maqui flowers freely at Kew, but rarely fruits. Its cultivation for the sake of the berries would, therefore, be precarious in England, but would probably present no difficulty in Southern Europe. The first notice of the introduction of Maqui berries into Europe is apparently that given by J. Poisson in the "Revue Horticole" for 1886, page 467. He suspected that they were intended for the colouration of wine, a purpose for which he stated that Elder berries were already employed in France. He explains that the object of adding the berries to Grapes in making wine in Chili was for the sake of the colour. No doubt it occurred to some ingenious person to extend their use in a dried state for the same purpose to the Old World.

The following letter was sent by Senor Juan de la C. Cerda, Consul-General for Chili, to the Royal Gardens, Kew:—"In reply to your kind letter of the 14th inst., I am sorry to inform you that I do not know where you could get some fruits for your museum of the *Aristotelia Maqui*; but I am writing to my friends in Liverpool and Glasgow, and as soon as I have any information I will let you know. Probably I may get some fruit, and if I do I will be very pleased to hand it to you. The common name of this fruit in Chili is Maqui, the same as the plant, and it is cropped from the wild shrub in the forests. It is not cultivated at all. I think that the attention of farmers will be very soon drawn to the cultivation of this important plant, in consideration of the great development in the exportation of its fruit to Europe in the last three or four years for colouring wines.

"The total of this exportation was 26,592 kilos, worth 2234 dols., in 1884; 136,026 kilos, worth 10,882 dols., in 1886; and 431,392 kilos, worth 34,515 dols., in 1887; of which the exportation to France was 500 kilos in 1884, 115,000 in 1886, and 315,774 in 1887. I have no statistics for 1888 and 1889, but it is to be supposed that the increase may have been in the same proportion. Wine is not produced from this plant, but ribbons from the stems for fastening in farming purposes are usual, and easily made without any preparation, simply by hand.

"I think it would be a benefit for Chili as well as for England, where this shrub grows in the open air, to carry out an experiment with two or three small stems of the good specimen you have in the Gardens by passing the ribbons of these stems produced by hand through any scutching machine, in order to ascertain the value of its fibres for textile purposes."—(*Kew Bulletin*).



FRUIT FORCING.

PINES.—*Plants Starting into Fruit.*—Plants selected about the beginning of last December, and started by an advanced temperature and increased moisture, are now showing fruit, and as it is advisable to promote the ripening as much as possible, the temperature may be maintained at 65° to 70° at night, and 75° to 80° under favourable circumstances, ventilating at 80°, allowing an advance to 85°, utilising the sun heat as much as possible. With the fruit advancing the plants will require more water at the roots; examine the whole stock once a week, as with increased light and heat the need for water will correspondingly increase. Recently started plants to succeed those already named should have a night temperature of 65°, and 70° by day artificially, which will be sufficient for them some time longer.

Starting Suckers.—Suckers will have to be started about the commencement of March to provide plants to give a succession of fruit from next December onwards: therefore attend to the preparation of soil for potting, and a fermenting bed in some close structure to generate and maintain a bottom heat of 85° to 90° near the surface, and with means of maintaining a temperature of 55° to 65° by fire heat with regularity.

VINES.—*Early Vines in Pots.*—These must not sustain any check through dryness. Top-dress with rich turfy loam and decayed manure in about equal parts, placing rims of zinc 3 or 4 inches deep round the tops of the pots, or if the pots are plunged to the rim in fermenting material, strips of turf of about that thickness should be laid so as to form the necessary dish. In order to encourage the swelling of the berries keep the laterals below the bunches somewhat closely stopped, allowing more liberty to those above them, but avoid overcrowding the trellis with foliage that cannot have full exposure to light. With the Grapes approaching the stoning process careful treatment is necessary. Ventilate early in the day, affording a little air at 70°, increasing it with the sun heat to 85°, closing at 80°, and if an advance follow to 85° or 90° all the better. Avoid cold draughts, they are a prolific cause of

"rust." If red spider appear, paint the return pipes with sulphur lightly. An overdose may injuriously affect the skin of the berries and spoil the crop. Afford liquid manure a few degrees warmer than the house in which they are growing, applying it also to the turf placed around the rim of the pots, as also the plunging material where the roots are allowed to find their way from the bottom of the pots, there being nothing like plenty of feeders to secure well-swelled berries.

Early Forced Planted out Vines.—Vines started early in December must have the berries thinned, and lose no time in doing so as soon as it can be seen which are properly fertilised by their taking the lead. Endeavour to have compact bunches, tying up the shoulders in preference to taking out a quantity of berries. Remove superfluous growths and particularly superfluous bunches unflinchingly, seeking a full crop of well finished bunches, duly furnished, properly swelled, and perfect in colour, which are much more creditable than an enormous crop of red berries, as sometimes seen. Allow the laterals to extend beyond the fruit as far as is consistent with the exposure of the foliage to light and air, tying and stopping as required. Afford a thorough supply of tepid liquid manure to the inside border at intervals as required to maintain the soil in a thoroughly moist state, and mulch with a couple of inches thickness of short manure, and as fresh as is safe, for although a moderate amount of ammonia is beneficial, when too powerful it is productive of serious injury. Let the night temperature range from 60° to 65°, 70° to 75° by day, with 10° to 15° advance from sun heat, commencing to ventilate from 70°, closing between 80° and 85°, damping all available surfaces well at the time. Do not syringe the foliage, as, however clear and soft the water may be, there is danger of sediment—a deposit on the berries, and though it may escape observation until the Grapes begin finishing, it is certain to then appear as a serious blemish. The outside border must be well protected against the chilling effect of snow and cold rains.

Vines Started at the New Year.—Disbud the Vines now the best shows can be determined, and it is not wise to be in too great a hurry about this work, nor in tying the shoots to the trellis, which must be done carefully, so as not to detach the shoot at its base, nor cause it to snap by bringing it down too sharply at the point. Remember also that the object of disbudding is to give the growths full exposure to light, it being better to err on the side of too little rather than too much, or overcrowding the foliage. Stopping too should not be done too hurriedly. Allow at least two, and if possible three or four joints beyond the bunch, and stop all laterals below the bunch at the first joint, or they may be rubbed off except from the two lowermost leaves. The laterals from these should be pinched at the first joint, but those level with and above the fruit may be allowed to extend as space admits. When in flower afford a night temperature of 65° to 70°, with 10° to 15° rise from sun heat, closing at 80°. Vine flowers set best when the atmospheric moisture is not excessive. An over-moist or a dry atmosphere must be equally avoided. Muscats require a somewhat higher temperature and drier atmosphere than Black Hamburgs when setting, artificial impregnation being practised with all shy setting varieties, particularly Muscats, which are often deficient of pollen, or if plentiful a better set is secured by fertilising every bunch carefully with Black Hamburg pollen than when their own is employed. Keep the points of the bunches of Muscats well up to the light.

Late Vines.—A long season of growth is required by late Vines, as to insure the Grapes keeping well they should be fully ripe by the middle or end of September. To effect this start the Vines at the end of February or the beginning of March. Let the inside border be well supplied with water at a temperature of 85° to 90°, and if there are fermenting materials at command a bed may be made upon the border, which will lessen the necessity for fire heat and insure a regular break. The rods should be sprinkled two or three times a day, maintaining a night temperature of 50° to 55°, and 65° in the daytime, by which means the Vines will start freely, and there will be every chance of the Grapes becoming thoroughly ripe by September, even such varieties as Gros Colman, the most noble late Grape, and Gros Guillaume, which require a month or six weeks more time to ripen thoroughly than Lady Downe's and others. As a general rule all houses of late Grapes must be started not later than the end of next month, hence they should be prepared as soon as possible, washing the woodwork, dressing the Vines, removing the loose surface soil from the border and supplying with fresh, to which has been added some fertilising agent, great benefit being derived from judicious applications of artificial manures, and having tried most of those advertised and found all good, and in most instances they are preferable to bones, as these in the crushed and half-inch state are slow in action, and they are particularly valuable where heavy mulching of stable and farmyard manure, which have a tendency to leave a deposit of soapy matter behind, have been employed by the mineral matter supplied in an available form. The outside border, which is a necessity of late houses in order to the Grapes keeping plump, should be protected against chill from falls of snow or heavy rains and frost. A moderate covering only will be necessary.

Late Houses of Black Hamburgs.—Keep the houses cool and dry, not allowing the border to become dust dry and crack, but a moderate amount of moisture only will be necessary to preserve the roots in sound condition. The only precaution necessary is to ventilate fully at and above 50°, and when that becomes the mean of the external air, or a little before, the Vines will break naturally, which usually takes place during April. The only assistance necessary is to maintain an artificial temperature of 50° to 55° at night and on dull days. The Vines will set their crops by the early part of June, and swell them

with sun heat, artificial heat only being required after the Grapes begin to colour, as they are much improved in quality through ripening in a higher temperature; indeed the Grapes must be thoroughly ripened or they will not keep well.

Vines from Eyes.—Those inserted as advised have rooted, and if in small pots should be shifted into larger as soon as the roots reach the sides, standing the pots on shelves over hot-water pipes in preference to plunging them in bottom heat; or if the eyes were inserted in pots or pans, several together, they may be placed in small pots singly, plunged in bottom heat to insure speedy root action, and when the roots reach the sides transfer them to 6-inch pots. Syringe well amongst them, and stop those intended for fruiting at the first joint of the laterals, but those intended for planting out this season, whether grown in pots or turves, may be allowed to retain all the growth made.

TOMATOES.—Early supplies are best grown in pots. For first crops cuttings struck in autumn and kept in small pots near the glass in a house with a minimum temperature of 50°, affording no more water than to prevent severe flagging may, early in January, be transferred to 10-inch pots, draining well and placing a few rough pieces of turf over the crocks, turning out the plants on those, using rough turf with about a fourth of well-decomposed manure, mixed for filling up around the balls. A considerable portion of stem, if the plants are tall, being buried by coiling it round the inside of the pots carefully, and bring the growing point to the centre, supporting with a neat small stake sufficiently long to reach the trellis. There is considerable space left in the pots after the plants are put in, which is utilised afterwards for additions of compost as the plants advance and the roots protrude. They are supplied with surface dressings of artificials after they become established. The plants are stood at the sides of a low span-roofed house, kept at a temperature of 60° to 65° at night and 70° to 75° by day, and are trained to the trellis fixed about 9 inches from the glass. The plants show trusses of bloom when only a few inches above the rim of the pots, and at about every second joint right away, they being trained as single cordons, kept to one stem by rubbing off all growths except the lead. In that way they go to the extent of about 6 feet up the roof, when all growths are removed as they show, and the foliage is kept comparatively thin by shortening the leaves gradually, the terminal leaflet being pinched off when the leaf is quite young, and the leaf is reduced about a third or not more than half when the truss of fruit corresponding to it is set and swelling. The first or cutting plants have now fruit set and swelling. The flowers as they become fully expanded should be carefully fertilised, distributing the pollen gently with a camel's-hair brush; a slight sharp rap of the footstalk of the truss is also a ready means of distributing the pollen. Properly fertilised flowers invariably afford the best shaped and fullest crop of fruit. Ripe fruit will be had during April. To follow these plants we have others from seed sown at the new year. These are grown on shelves as close to the glass as they can well be kept for safety, the object being to get them hard, the growth thoroughly solidified as well as sturdy. They are transferred to pots 10 or 12 inches in diameter, not later than early March, and they afford fruit from May onwards. For planting in houses that have been used for bedding plants, Tomatoes are raised from seed sown early in February, and strong plants showing bloom, are fit to plant out in April, or not later than middle May, if they are to afford a profitable crop. In this way plants for cool houses are raised, getting them strong and well established and hardened off in 6-inch pots, the chief point being to get the growth firm from the beginning, to insure which they must be kept well up to the light. The kinds are numerous, each grower having his special favourite. Ours are Acme and Hackwood Park, with Ham Green Favourite to fill the basket. Planting-out is best for affording general summer and autumn supplies of fruit.

KITCHEN GARDEN.

POTATOES.—Those in frames are making rapid progress. They have been supplied lately with water heated to 90°, but as they are on rather moist hotbeds they do not require this very often. Air is admitted almost daily from the opposite side to that from which the wind is blowing, and this keeps them sturdy and healthy. They are covered with mats nightly, but these are not applied until 6 p.m., and when not frosty they are removed at daylight. We find the crop much better when treated in this way than when coddled. Tubers of early sorts placed on their ends in shallow boxes and in a vinery to sprout a fortnight or three weeks ago are now in good order for planting, and after remaining in a cold frame for a few days they will be planted along the bottom of a south wall and on a south border in a sheltered position. These are the only situations in which Potatoes can be planted with advantage or success during March. Continue to spread out more early and second early tubers intended for planting in a few weeks hence, and let them form shoots without being drawn up weakly or delicate in colour.

RADISHES.—This is the first salad plant that can be raised in the open air, and those who are deficient of forcing space and cannot grow them under glass may now sow a pinch of seed in the most sheltered spot they can find in the open. Two or three rows a yard or so in length will be sufficient for the first sowing, but they may be sown three times during March.

JERUSALEM ARTICHOKE.—We fear this most useful winter vegetable is not grown in every garden. It generally finds a corner in large establishments, but rarely in that of the amateur or with the cottager. It is looked on as unfit for the table unless prepared by the hands of a

professional cook, but those who have ventured to try it as a common winter vegetable have been more than satisfied with its excellency and usefulness, and we recommend it to all as one of the best winter crops that can be grown in any garden. It produces tubers almost as large as Potatoes, but it is in no way liable to disease, will bear heavily in soil where the Potato would fail, is never injured by frost in spring, nor does it require protection in winter. They are left in the ground and dug as required until this time, but as they should be dug and replanted every spring the time has arrived for this operation. They grow in clusters, and if allowed to remain over a second season they would become a mass of small growths and small tubers. Dig the whole, clear them all from the soil, select a number of the best formed tubers for subsequent planting, and store the others under ashes for further use. Spread a quantity of manure on the surface of the ground intended for their reception, begin to dig it, and as this goes on plant a row of the roots every 2½ feet. Keep the sets 1 foot apart, and place them 3 inches below the surface. Their stems are stout and hardy, are not easily injured by wind, and attain a height of from 7 to 10 feet, forming a serviceable screen or shelter.

VEGETABLE MARROWS.—These are not valued much as a vegetable in the autumn, but if they can be secured in May, June, or July they are greatly valued, and all who can do so should sow a few seeds at once to secure a few early plants which if treated like frame Cucumbers, will fruit in May. If planted on a bed under a frame at first, the latter can be removed when the summer comes, and the same plants will continue to bear for months if the fruits are regularly cut off as they gain a useable size.

CELERY.—All who require Celery in July or August for exhibition or other purposes, should sow a pinch of seed without delay. The main or winter crop need not be sown until April, and where only ordinary Celery is needed we advise delaying sowing till then. A pinch of seed placed into a 6-inch pot will produce many scores of plants. It will germinate, and the plants grow freely in a temperature of 65°. Old Celery is lasting well this winter. We have many rows still almost in as good condition as when it was earthed for the last time in November. Some may have to dig the remainder of their crop to get the use of the ground it is on, but it keeps in very much better condition until late in the spring if left undisturbed in the trenches than when dug and stored anywhere else. We have sometimes used every alternate trench at this season, dug the ground, and sown a row of Peas, and this allows ground to be cropped, while the Celery between the Peas is not in the way, and may be left as long as it lasts good.

YOUNG VEGETABLES UNDER GLASS.—Cauliflowers, Lettuces, Brussels Sprouts, and other young vegetables under glass are now growing rapidly. If they are kept in a close high temperature far from the light they will be spoiled, but if near the light, given all the air possible without checking them, and never allowed to form long spindly stems, they will all prove highly useful. If they have been raised in boxes or pots, try and move them from these as soon as they are 3 inches high. They may be returned to boxes again, but the better way is to make up a shallow hotbed, place any old frame on the top of it, put some good soil inside, make it very firm, and dibble the young plants in 3 inches apart. By careful nursing for a few days and ordinary care afterwards, these may be turned out into the open quarters in the end of March or early in April with great success. This is the best of all ways of treating young vegetables of all descriptions, and it is entirely due to this that we secure many fine extra early crops.

SPRING ONIONS.—This is a common term applied to all Onions sown in spring. The crop is one of the most important of all, as on it depends a good or bad supply of Onions during next winter. The ground selected for the spring Onion crop should be a strong rich soil fully exposed to the sun and guaranteed to keep free from worms or grub for the next seven months. This can be insured by selecting a piece of ground that is not maggoty and dressing it while the manure is being applied with a large quantity of soot, a small quantity of gas lime, or a little ordinary lime, but the former is better applied in the autumn. Dig the soil deeply first, then fork it and break it well, and on the first fine dry day after March is in open drills all over the piece at a distance of 10 inches or 1 foot, and 2 inches deep. Sow the seed evenly but thinly, cover with the rake, tread the soil over the seed, rake all smooth, and success is sure to follow. As to varieties to sow now the Fanbury is a reliable sort, and James' Keeping should always be included, as it is the best of all for use the following spring after it has been stored in the autumn. It is not a large growing variety, but its long keeping qualities make it invaluable.

THE BEE-KEEPER.

QUEEN BREEDING—PUNIC BEES.

In the Journal for January 30th "A Lanarkshire Bee-keeper" appears to slightly misunderstand me. Let me assure him that I did not intend in the slightest degree to construe his remarks into a condemnation of my plan of rearing queens, and I very much regret that he should have been led to think I meant so.

I understood him to put the matter in this way. "Yes,

'A. H. B. K.,' the queens you rear in the way you direct are bound to be good ones, if it is possible to rear a good queen, and bee-keepers who practise the method are sure to be gainers; but I do not admit that the progeny of such queens will hibernate, nor do I admit that queens reared in nuclei will turn out worthless, as I have for many years divided up stocks into nuclei with queen cells, and such queens have always been satisfactory." Of course these are not his exact words, but are what I understand him to mean. I do not doubt or question his assertion that his queens were always satisfactory, because, being an old practical hand, and having noted that when cells are chilled or retarded in hatching, the queens hatched out with wings or legs deformed, he would be sure to guard against the cells being chilled. Here, again, is a difference between his plan and what has been the practice or advice of noted queen breeders. He reared his queens in full strong stocks, and then divided them, just as the queens were ready to hatch. Others have nuclei ready—just a handful of bees—and though they rear the cells in full stocks they cut them out as soon as sealed and give them to nuclei, or hatch them in nurseries, and then set the stock to rear fresh cells, so that before the first cells hatch there are others sealed and cut out. It is this practice that I condemn, and which I assert can never result in any but a worthless queen.

In practical hands the plan described by "A. L. B. K." will turn out "satisfactory" queens—that is, queens that will satisfy anyone who has never seen any better; but I am one of those who are never satisfied, and having found out how to breed better queens with less risk of getting faulty ones, I prefer to use and recommend it in preference to any other.

Supposing, for argument, I drop the question of "hibernation." The fact remains that queens reared in the manner I have laid down will, after the third generation, produce bees that will never have winter dysentery or abdominal distension, or even spring dwindle. Whether it is because they hibernate, have stronger constitutions, or eat less food, or what not, this fact remains, and of which I am positive.

I have also shown that while I condemn cell cutting out, queen nurseries, and all other means of hatching queens, I can rear more queens with less trouble on my new plan than any person has ever been able to do by any other means, no matter how carried out. What do all these authorities on queen rearing say about my system of rearing a daily or weekly supply of queens from one stock all the season without cutting or losing a cell? Who knew that when bees were under the swarming fever they would rear and seal fresh queen cells while had they ever the opportunity to prevent such queens from killing each other as long as the swarming fever was on them? There has been no end of talk about getting queens reared from the egg and all kinds of dodges to accomplish it, but in my plan all that is necessary is to give the bees a comb with some eggs in, and queen's cells will be started at once on such eggs, even if they are drone eggs, and this, with queen cells sealed or unsealed, or queens piping in their cells, or already hatched.

Our friend says the Punic bees I sent him do not appear to be hibernating. In my case, since I wrote last, they have shown signs of activity consequent on the very warm weather we have been having, and if his report of weather and temperature is worth anything, his locality, though 200 miles further north, is considerably warmer than it is here, hence his bees may be in quite an active state. I do not imagine that bees of any kind will hibernate when warm weather sets in, or after they have been induced to commence breeding. Punic bees, again, are more active than any others, beginning work in the summer before sunrise, and working on days that are too cold for any other race to venture out. Again, these bees in their native land never do hibernate. They come from North Africa, near the great Sahara desert, where everything is dried and burnt up in summer. The rains fall in November, which speedily starts everything growing. In December the flowers expand, from which time onwards until May

they find plenty of forage. January and February are the main swarming months. After the hot weather sets in they get no honey at all, and have to extract sweets from ripe and bruised Dates and other substances that yield saccharine matter, which they would find the best to collect early in the morning before the sun is high, and while the dew was on, but as the sun in those parts is soon high above the earth, the bees to get every advantage would leave their hives at the first glimmer of day; at least, this is how I account for their having this peculiarity. They also have the power to eat hard dry crystallised sugar even when the crystals are upwards of a quarter of an inch square. The first time I noted them doing this was after I had left some feeders in which the syrup had slowly crystallised at the bottom in an empty hive. The Punic bees found them and cleared every particle of sugar out. No other bees touched it. I have since found that they can take a hard dry sugarloaf almost as readily as syrup.

I have expressed myself previously as being of opinion that these bees would not prove as good as others for comb honey, especially Carniolians, on account of their lavish use of propolis. I have had to alter my opinion on this point, as last season they filled and sealed glass sections very much better, more evenly, and with whiter cappings than any other race. There was a great difference between our native blacks and the work they turned out.

I have now come to the conclusion that they are the best race of bees ever introduced to this country. They have entirely won my esteem, as I was quite prejudiced against them at first, being fully sure that bees from the tropics, where winters are equal to our springs and early summer, would never winter in this country. I now give them first place on every point except beauty. They are blacker and not nearly so good looking as our common black bees, but "Handsome is that handsome does," at least that is the opinion of—A HALLAMSHIRE BEE-KEEPER.

SINGLE CASED HIVES.

WOULD "A Lanarkshire Bee-keeper" kindly state if his hives are single-cased all round, how thick they are, and what influence the sun has on them in summer time? Do they need protection from it? I should like to make some for this season, if "A. L. B. K." would state the measurement, the number of bars required, or help me in any way.—YORKSHIRE.

[The majority of the hives I possess are single cased. Double cased or thick sided hives are a great mistake if they are to be moved about. Single cased hives require outside protection, and there is nothing better than long grass well dried. A uniform degree of heat at all times is desirable, and during summer archangel mats do well, as they shade the hive and allow evaporation to pass away. It is not so much the direct heat from the sun that causes combs to collapse as the heat from the bees through defectively constructed hives. I have had combs collapse several times in double cased hives, but never in single cased ones. Five-eighths of an inch is thick enough for any hive walls, being strong enough for every purpose. Less thick would not be sufficient for fastenings and handles, while thicker is too weighty, and the wood holds damp.

Our contemporaries advise uncovering supers during hot weather—a mistake. Keep supers always well covered, and the sides of the hive as well. The bottom ventilation is the safety valve during excessive heat.

As the sluggard has been told "to go to the ant," so do I advise the beginner to go to the bee and study her ways. One thing in this respect, I have never seen her depart from fixing her combs at less than $1\frac{1}{2}$ inch from centre to centre. My hives are exactly 14 inches wide inside measurement. It is immaterial whether that distance be strictly adhered to, but the nearer the square the better.

That distance admits nine frames with an additional quarter inch next the sides for obvious reasons. A mouth piece half an inch high the whole width of the hive should be in all the divisions. It is formed slide and groove in front of the hive by a pair of five-eighths match ploughs. The rebates for bars half an inch deep and quarter inch wide is easy work for an amateur if he uses a drawer bottom plane. This tool of a special make grooves the bars for foundation. The front and back to receive the sides are best done with a saw, and should project over the sides nearly a quarter of

an inch and rounded. This gives a neater appearance than when flush, and is easier made. If the above is not sufficient help, further queries will be answered.—A LANARKSHIRE BEE-KEEPER.]

TRADE CATALOGUES RECEIVED.

Eric F. Such, Maidenhead.—*Spring Catalogue and Amateurs' Cultural Guide, 1890.*

Messrs. Pitcher & Manda, Short Hills, New Jersey.—*Catalogues of Chrysanthemums, Single Dahlias, and Orchids.*

M. Campbell, Blantyre.—*Catalogue of Florists' Flowers.*

Dicksons, Chester.—*Select Farm Seeds.*

Dicksons & Co., Edinburgh.—*Farm Seeds.*

T. S. Ware, Hale Farm Nurseries, Tottenham.—*Catalogue of Choice Hardy Perennials, Hardy Climbers, Pæonies, Florists' Flowers, Dahlias, &c.*

B. R. Davis, Ycovil.—*List of Begonias.*



TO CORRESPONDENTS

* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (Hopeful).—The following will afford you much information:—Dr. Masters' edition of Henfrey's "Course of Botany" (Van Voorst), and Johnston and Cameron's "Elements of Agricultural Chemistry," Blackwood. They can be obtained through a bookseller. You may write to F. W. Burbidge, Esq., Trinity College Botanic Gardens, Dublin (who prepared a work on drawing), enclosing a stamped directed envelope for reply. There are many young men with "great aspirations," but only a few of them become "great gardeners." Close study and hard work are essential to success.

Tulipiana (D).—Please state the nature of the information you require in reference to the treatise.

Sheep's Manure for Mushroom Bed (R. C. W.).—When somewhat dry, but not too dry, it is excellent for mixing with manure from horse stables for the purpose in question.

Rose (J. H. V.).—As the reference is to matter in the "Rosarians' Year Book," you had better write to the Rev. H. H. D'Ombraïn, Westwell Vicarage, Ashford, Kent, enclosing a directed postcard for his reply.

Articles on Gardening (F. P.).—You regard the matter on which you write just as a sensible practical man must of necessity do. Good matter cannot be too widely circulated, and on that principle we endeavour to act; and we suspect you could add to the usefulness of the pages which have been useful to yourself during the past ten years. Short notes are often even more acceptable than lengthy articles. The *Chrysanthemum Annual* is in the press and will shortly be ready for distribution.

Manure from Cow Shed (Amateur).—This is better than manure from horse stables for dry gravelly soil, because of its cool and moisture-holding nature. Its value depends largely on the food consumed by the animals. If these are lean, young, or in milk, the manure will not contain much substantial food for crops, and a peck each of kainit and bone meal to a load would add considerably to its value. In addition to digging manure into the ground, heavy mulchings—that is, placing manure on the surface of the ground—is good for dry soils.

Pruning Young Apple Trees—Rhubarb (Golden Spire).—We think we understand your case now, but it would have been better if you had stated about the length of the shoots. You will not err, however, by cutting entirely out any of a weak wiry looking nature, shortening the longer and stronger about half their length, or more, to buds pointing outwards as the growths extend in the direction in which the buds point, and overcrowding should always be avoided. We should certainly object to "planting all the ground" with Rhubarb. In some of the London market gardens rows of Rhubarb are grown between the rows of fruit trees, and the ground being highly manured.

the plan answers very well. We do not advise your planting Rhubarb within 8 or 9 feet from the stems of the trees.

Land for Fruit Growing (D. D.).—Fruit is well grown in some parts of Essex, and near Colchester. The best land is such as will grow the best Clover. It must be free from stagnant water and well worked to a depth of 18 inches or thereabouts, not, however, bringing the sub-soil to the surface. Given such land, the question of profit depends on the cultivator. Some persons make a "comfortable living" by fruit culture, and others fail. Mr. Robert Garrod, who is well known in Colchester, has found the occupation satisfactory, and made his land at the least twice as profitable as that surrounding his enclosure. You cannot do better than consult him on the spot.

Gardeners Out of Situations (A. B. D.).—Your letter is very well written, and we see no reason why you should hesitate to send contributions to the press on subjects of practical gardening with which you are acquainted, but it would be useless our publishing the suggestion which is the purport of your communication. It would simply divert attention from the main subject, and have no useful results. As you may see on page 160 of our last issue, there appears to be a Society in existence for affording aid to unemployed gardeners, and if the rules are sent to us we will consider the advisability of making this Society more widely known. It is scarcely necessary to say that we should only be too glad to give encouragement to any organisation established on sound lines that would be of substantial benefit to the gardening community.

Vine Eyes Falling (J. M. H.).—As you followed Mr. Barron's instruction it would, perhaps, have been better to have written to him. The elongation of growth is the result of heat and moisture, and the stoppage of that growth the consequence of the absence of roots. The elongation continued till the sap in the wood was exhausted, and by that time, or before, roots ought to have formed. Either the wood was not as it should be, the soil unsuitable, or the top heat too great. You will observe the stress which the author of "Vines and Vine Culture" lays on the necessity of early well-ripened wood for propagation. He is quite right, and we suspect the portions you selected were faulty, and not well stored with starchy matter. Try again, with the best wood you can find, not small, hard, exhausted wood, but firm, well fed wood. Insert the eyes in pure turfy loam, crushed charcoal and sand, plunging the pots in a bottom heat of 80° to 85°, the temperature of the house or pit ranging from 55° to 65°. The present condition of the samples does not enable us to determine their state when cut from the Vines.

Orchid and Gardenia Flower Buds Falling (S. M.).—Probably you have kept the Orchids named too dry at the roots, and though at this time of year liberal supplies of water are dangerous, yet the other extreme is fatal to the flowers. Give them as light a position as possible, and keep the peat and moss well moistened. This may save those that remain upon the plants. The flower sent in the letter is too much crushed to be recognised. The Gardenias are suffering in a similar way, either because they have had a check at some time, or because the bottom heat is insufficient. They should be plunged in bottom heat that can be kept at 80°, with an atmospheric temperature about 10° lower. If the plants are syringed twice daily the buds will develop quickly. If the pots are full of roots weak stimulants may be given, or, better still, a little artificial manure applied to the surface. In the later batches the roots must be kept steadily growing, or the flower buds when they appear will be puny if not deformed. In the majority of cases the deformity and falling of the flower buds of these plants is due to inactivity of their roots, and strong supplies of liquid manure during the time root action is defective. Strong insecticides will also cause the same results when applied as the buds are forming.

Profitable Flowers (W. F.).—There is a good demand for Bouvardias, but by far the best prices are obtained in provincial towns. The London markets would appear to be well supplied with them, large quantities being grown in Kent and Sussex especially, and as a consequence prices are low, from 3d. to 6d. per dozen sprays being all that can be obtained. Unless exceptionally well grown, whole houses being given up to them for a few weeks, they do not pay well at the London prices, but in the principal provincial towns it not unfrequently happens the prices range from 1s. to 2s. per dozen, and in this case Bouvardias are decidedly profitable. The doubles are the best for the purpose, as although the singles are the most beautiful they are not serviceable enough for the markets. The two favourites are A. Neuner (white) and President Garfield (pink), and a trial might well be given to Thomas Meehan (double scarlet) and Victor Lemoine (bright scarlet), this also being a double-flowering variety. For local purposes we can recommend Vreelandi (pure white), Candidissima (an improved Jasminoides), Dazzler (rich scarlet), and the newer President Cleveland (bright scarlet), these being very floriferous single varieties. If not unduly shaded by the Maréchal Niel Rose, an intermediate temperature being maintained, the Bouvardias would succeed far better than semi-double Zonal Pelargoniums, the latter, though flowering freely in heat, being most impatient of shade. For the markets you cannot have any better Pelargoniums than F. V. Raspail and La Cygne, the demand being greatest for these at Christmas, any scarlet and white flowers selling well at that time. Further hints upon Bouvardias, Zonal Pelargoniums, and other flowers for the markets will duly appear in our columns.

Cœlogyne cristata (Floral).—Your best plan is to allow the

material about the roots to become moderately dry, then turn the plant out of the pan and carefully work all the soil from amongst the roots. If you cannot do this with the fingers without the destruction of large quantities of roots, wash the soil from amongst the roots with tepid water; after this allow the plant to drain thoroughly, and then break it into pieces. If the pseudo-bulbs are crowded, we should trace out the rhizomes until the whole is broken up. On each rhizome there may be two or three leads. Some of these would be cut just in front of each lead, and all small pseudo-bulbs with a lead laid on one side. Even small ones that have no lead would be taken from those rhizomes that have large flowering pseudo-bulbs at the end. Those having three or four good leads need not be cut in all cases, they can be secured by means of a few pegs in the pot or pan. By breaking up the plant thoroughly, all old material is removed from amongst the roots. The pseudo-bulbs can then be sorted into three sizes, so that the largest, moderate sized, and small ones can be potted by themselves, while those that have to make back breaks should also be kept alone. Another plan is to work from amongst the roots a portion of the compost only, and then to cut the rhizomes and break the plant up into a certain number of portions, suitable in size to the pans or pots they are to occupy. This disturbs the plant less than the other method; but there are objections to it, which warrant us in advising you to follow the other system. The first is that a portion of decayed or decaying compost is left about the roots of the plants. Another objection is leaving the pseudo-bulbs in a more or less crowded condition and of various sizes. In potting the pots must be one-third filled with drainage, and over this a little moss or rough fibry peat can be placed, then fill the pot or pan with the compost in which the plants are to be potted, and which may consist of fibry peat and charcoal, or crocks, both may be used. Living sphagnum moss may be reserved for the surface. If you commence towards one side of the pot or pan you can gradually raise them to the centre, pressing the compost firmly about them. A few wire pegs may be necessary to secure them in their proper position. The rhizomes must not be buried below the surface. After the pseudo-bulbs have been placed evenly over the pots, you can make them firm by pressing portions of peat amongst them and at the sides of the pots. Your plant can be attended to at once, and should be placed afterwards in brisk moist heat. Dew the foliage with tepid water once or twice daily according to the weather until growth is commencing, when the peat may be surfaced with moss. At first, until they begin growing, water should be given carefully. Shade the plants from the sun after they have been broken up. Old pseudo-bulbs that have to make back breaks will have few roots of any value, and the rhizomes should be pegged on the surface of the peat.

Hardy Plants (Town Garden).—We know of no book of the nature which you suggest that would be likely to help materially, and we readily give the information you require. Snowdrops, Crocuses, Hyacinths, and Narcissus of various kinds would do in the position you describe, and should be planted in October. Lilius candidum, tygrinum, californicum, testaceum, and, if not too shaded, auratum. The latter can be planted now, the first and fourth in August after they have flowered, the others in October. The two first are the most useful and certain. Myosotis and Daisies would grow well amongst these for spring flowering. Auriculas, Primroses, and Polyanthus would also thrive in the shadiest place. These can be raised from seed sown in March and April, and grown outside anywhere in the shade until autumn, when they should be planted where they are to flower, or where they are to remain. The Auriculas are best taken up after flowering and replanted again where they are to flower towards the end of September or early in October; in the meantime they would do in any shady corner. German Irises of various kinds do splendidly in shady positions, and may be planted now or at almost any season of the year, but the best time is just before they start into growth. English and Spanish Iris also do well. They take up very little room, and some of the flowers are most beautiful. These are deciduous, and should be planted in autumn. The common white garden Pink will do well, and may be planted now. Delphiniums are good as tall plants, and can be raised from seed sown outside in April, or plants may be obtained and planted until the end of March. Phloxes, if not too shady, would flower profusely; plants of these should be obtained and planted during the next few weeks. Anemone japonica and its white form alba (Honorine Jobert) will succeed if the position is fairly open. These may be planted any time from October until April, the earlier the better if they are to flower the first season. Geum coccineum may be raised from seed, and strong plants put out during showery weather in spring soon commence flowering. In the lightest position Asters novæ angliæ, novi belgi, and several others would flourish, and should be planted in spring. Campanula persicifolia, with its variety alba and flore pleno, also C. glomerata, and its white form alba, as well as C. Hosti, if they are not too much shaded, will do well. These may be planted any time during the spring. Dielytra spectabilis, Doronicum austriacum, Funkias in variety, Helenium pumilum, H. Hooperi, and any of the varieties of Hypericum. Lily of the Valley can be planted after flowering, or any time from October to March. Lychnis chalcædonica and alba raised from seed sown at the end of March or the first week in April. Enothera Youngi and macrocarpa raised from seed. Rudbeckia Newmani, R. Drummondii, and Senecio, Doronicum will also succeed. Where particulars are not given plants should be obtained and planted during the last week in March or early in the following month. The ground where they are to be planted should be deeply dug and liberally manured.

Peaches for Planting (S. T.).—You cannot do better than plant the Nectarine you name, Pine Apple. If you want a succession of Peaches, plant Grosse Mignonne, Bellegarde, and Barrington. If you plant Royal George it would ripen before you had finished gathering Grosse Mignonne. Alexandra Noblesse is a splendid Peach, but tender in the skin, and is easily damaged; at the same time it is rather shy. Dymond is an excellent Peach, but not better than Royal George. If you could place the last-named in the coolest portion of the house, then we should prefer it to Bellegarde, for the flavour is superior.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (W. H. B.).—A solitary Apple may or may not be fairly typical of the variety, and your "last" specimen we are inclined to think is somewhat more conical than the majority. In all other characters it resembles the Norfolk Beefing, and that is possibly what it is. Reine Marie Henriette is a suitable companion Rose to Gloire de Dijon. (P. R. S.).—The Apple you send is, we think, Lord Derby, which sometimes keeps till this period of the year. When preparing the fifth edition of the *Fruit Manual* in 1883 Dr. Hogg says on page 135 that he then had fruits 4 inches in diameter and the same in height, and the description there given is applicable to your specimen. This Apple is not so well adapted for culture in the north as the south of England. (R. W. W.).—Your letter has been sent to us from the publisher's department, but we have not received an Apple which you say was "enclosed," nor can we find, on inquiry, any specimen in the department in question.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes, slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (A. F. S.).—1, *Asparagus tenuissimus*; 2, Insufficient without flowers; 3, *Siphocampylus bicolor*; 4, *Asplenium viviparum*. (W. G.).—1, *Nephrodium molle*; 2, *Onychium japonicum*; 3, Insufficient without flowers, probably an *Anthericum*; 4, *Asplenium viviparum*. (J. H.).—*Livistonia inermis*. (Australia).—1, *Drimys Winteri*; 2, *Raphiolepis ovata*.

COVENT GARDEN MARKET.—FEBRUARY 26TH.

Market very quiet, business consisting principally of foreign importations, such as Apples, Tomatoes and New Potatoes.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½ sieve	2	0	6	0	Oranges, per 100	4	0	9	0
" Nova Scotia and					Peaches, dozen	0	0	0	0
" Canada, per barrel	18	0	25	0	Plums, ½ sieve	0	0	0	0
Cherries, ½ sieve	0	0	0	0	Red Currants, per ½ sieve	0	0	0	0
Grapes, per lb.	2	0	5	0	Black	0	0	0	0
Lemons, case	11	0	15	0	St. Michael Pines, each..	2	0	6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, dozen	0	0	0	0	Leeks, bunch	0	2	0	0
Asparagus, bundle	6	0	8	0	Lettuce, dozen	0	9	1	3
Beans, Kidney, per lb. ..	1	6	2	0	Mushrooms, punnet	1	6	2	0
Beet, Red, dozen	1	0	2	9	Mustard & Cress, punnet	0	2	0	0
Broccoli, bundle	0	0	0	0	Onions, bushel	3	0	4	0
Brussels Sprouts, ½ sieve	1	6	2	0	Parsley, dozen bunches	2	0	3	0
Cabbage, dozen	1	6	0	0	Parsnips, dozen	1	0	0	0
Capsicums, per 100	0	0	0	0	Potatoes, per cwt.	3	0	4	0
Carrots, bunch	0	4	0	0	Rhubarb, bundle	0	2	0	0
Cauliflowers, dozen	2	0	4	0	Salsify, bundle	1	0	1	6
Celery, bundle	1	0	1	3	Scorzoneria, bundle	1	6	0	0
Coleworts, do. bunches	2	0	4	0	Shallots, per lb.	0	3	0	0
Cucumbers, doz.	6	0	9	0	Spinach, bushel	1	0	2	0
Endive, dozen	1	0	0	0	Tomatoes, per lb.	0	6	0	9
Herbs, bunch	0	2	0	0	Turnips, bunch	0	4	0	0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Acacia or Mimosa, French,	0	8	to	1	0	Marguerites, 12 bunches	2	0	to	6	0
" per bunch	3	6	7	6	" Maidenhair Fern, dozen						
" per basket	3	0	5	0	" bunches	4	0	9	0		
Arun Lilies, 12 blooms ..	0	6	1	0	Mignonette, 12 bunches..	2	0	4	0		
Azalea, dozen sprays	0	6	1	0	" Fr., large bunch	1	6	2	0		
Bouvardias, bunch	0	6	1	0	Narcissus, French, 12						
Camellias, dozen blooms	1	0	4	0	" bunches	1	0	3	0		
Carnations, 12 blooms ..	1	0	2	0	Pelargoniums, 12 trusses	1	0	1	6		
Christmas Roses, 12 blms.	0	0	0	0	" scarlet, 12 bunchs	6	0	9	0		
Chrysanthemums, dozen					Primula (double) 12 sprays	1	0	1	6		
" bunches	4	0	9	0	" (single) 12 sprays	0	6	1	0		
Daffodils, dozen blooms..	0	4	1	0	Roses (indoor), dozen ..	1	6	3	0		
Deutzia, per bunch	0	6	0	9	" Red	0	0	0	0		
Epiphyllums, doz. blooms	0	6	0	9	" 12 blooms	6	0	9	0		
Encharis, dozen	3	0	4	0	" Tea, white, dozen..	1	0	3	0		
Gardenias, 12 blooms ..	12	0	24	0	" Yellow	2	0	4	0		
Hyacinths (Roman) dozen					" French, per bunch	2	0	6	0		
" sprays	0	6	1	0	Spiraea, dozen bunches ..	9	0	12	0		
Lapageria, 12 blooms ..	2	0	4	0	Stephanotis, dozen sprays	0	0	0	0		
Lilium, various, 12 blms.	2	0	4	0	Tuberose, 12 blooms ..	1	6	2	0		
Lilium longiflorum, 12					Violets, dozen bunches ..	1	0	2	0		
" blooms	9	0	12	0	" French, per bunch	1	0	2	0		
Lily of the Valley, dozen					" Parme, per bunch	3	0	4	0		
" sprays	0	6	1	0	White Lilac, Fr., per bnch	4	0	6	0		

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi, dozen ..	6	0	to	12	0	Foliage plants, var., each	2	0	to	10	0
Arun Lilies, per dozen ..	12	0	18	0	Genista, per dozen	8	0	12	0		
Arbor Vitae (golden) doz.	6	0	14	0	Hyacinths, 12 pots	6	0	9	0		
Azalea, various, per dozen	18	0	30	0	Lily of the Valley, 12 pots	18	0	30	0		
Christmas Rose	0	0	0	0	Marguerite Daisy, dozen	6	0	12	0		
Cyclamen, per dozen ..	9	0	18	0	Mignonette, per dozen ..	0	0	0	0		
Daffodils, 12 pots	6	0	9	0	Musk, per dozen	0	0	0	0		
Deutzia, 12 pots	8	0	12	0	Myrtles, dozen	6	0	12	0		
Dracena terminalis, doz.	24	0	42	0	Palms, in var., each	2	6	21	0		
" viridis, dozen	12	0	24	0	Primula (single), per doz.	4	0	6	0		
Epiphyllum, per dozen ..	12	0	24	0	Rhodanthe, per dozen ..	0	0	0	0		
Erica, various, dozen ..	12	0	18	0	Roses (Fairy), per dozen	11	0	12	0		
Euonymus, var., dozen ..	6	0	18	0	Saxifraga pyramidalis,						
Evergreens, in var., do en	6	0	24	0	" per dozen	0	0	0	0		
Ferns, in variety, dozen..	4	0	18	0	Solanums, per dozen ..	6	0	12	0		
Ficus elastica, each ..	1	6	7	0	Tulips, 12 pots	8	0	10	0		



SOIL FERTILITY.

SOME recent correspondence which has appeared in the *Times* upon this subject has given rise to the question, "Is the earth gradually becoming less fertile?" or, as it has also been put, "Is there a loss of primal fertility in the soil?" By primal fertility we take it is meant the condition of virgin soil when first brought under cultivation, and chemists tell us that ordinary soil contains less than 4 per cent. of the essential elements of plant food, the greater part being derived from air and rain, to which must be added about 3 per cent. of fertilisers, consisting of clearly defined quantities of potash, nitrogen, lime, and phosphoric acid in order to insure a full crop.

Although the term of primal fertility is certainly vague and calculated to mislead, yet we are bound to welcome any discussion which tends to draw attention to the soil and its cultivation. But surely it must be apparent to everyone that there is some exhaustion of the soil by every crop taken from it, and that if we would do what is possible to insure a succession of full crops the soil must be kept stored with fertility by the systematic use of fertilisers. However different opinions may be as to the best form in which manure should be used, the fact remains that manure is indispensable, and it is equally beyond question that the best manure is that in which efficiency and economy are best combined.

It has been laid down by unquestionable authorities that the soil is superabundantly provided naturally with soda, silica, magnesia, sulphuric acid, chlorine, and ferric oxide. It derives carbon, oxygen, and hydrogen from the air and rain; it may also obtain some portion of the other manurial constituents from decaying vegetation. It may, of course, possess enough of lime naturally, as it undoubtedly does in certain formations; it may even contain enough potash; but the four chief fertilisers must be present in sufficient quantities for the requirements of each crop, and in our endeavour to store them in the soil it is to be feared some waste is unavoidable. That enough potash is present in the soil much more generally than was supposed has been proved by the widespread use of muriate of potash, to which Mr. Cook's remarkable success with the use of it in Barley culture at Fritcham Abbey gave rise. The fact that nobody else has obtained anything approaching the Fritcham results tends to show that it was decidedly an exceptional case.

Potash had a thorough trial last year in the experiments of the Bath and West of England Agricultural Society, carried out upon nine farms upon red sandstone, five upon chalk, and five upon other soil. The result of these trials in Barley culture affords additional proof of the value of nitrate of soda in combination with mineral superphosphates. The best dressing to Barley per acre consisted of 1½ cwt. nitrate of soda, 2 cwt. mineral superphosphate, and 3 cwt. of common salt, and the value of this addition

of salt appears to be recognised by all those who were directly interested in the trials. Its low price and its beneficial effects should lead to a much freer use of it. On one farm a field which had been laid down for two years under seeds had no manure and yet gave better results than any of the other fields which had manure. The result is curious, but it is unimportant, as it is positively certain that the soil contained an ample store of plant food, and the test was, therefore, an unfair one.

If the superiority of the Barley in the unmanured field draws more particular attention to the nature and condition of the soil in fields selected for such experiments it will certainly do much good, for unless the drainage and porosity of such soil is equally sound the manure test cannot be a fair one. We but repeat an oft-told tale when we urge upon farmers the equal importance of drainage, mechanical division, and fertility. Without the two first the last is comparatively useless, and we could undertake with certainty that the crop of a well drained mixed soil field though unmanured should be altogether superior to that of heavy undrained land however highly manured. Light and heavy land may occasionally be found upon the same farm, but the difference in the nature of the soil might pass unnoticed by a visitor who was not prompted to look for it.

Primal fertility then is merely a comparative term, worthy of being classed with that of "season-proof land," which farmers in search of a farm have recently been advised to look for. Both terms are relative, and neither has a practical literal meaning; yet there is no doubt that under present conditions some land is not worth having rent free, while other land is so sound, is so readily stored with fertility, and the crops are so little affected by an adverse season that it is worth a comparatively high rent.

WORK ON THE HOME FARM.

Never was the value of thorough provision for the lambing more evident than it has been recently with a bitterly cold east wind often blowing hard. Exposure to it is most trying and exhaustive for young lambs, and both ewes and lambs have been kept in snug quarters in the lambing yards with plenty of clean straw for litter fresh daily and plenty of shedding for shelter. Especial care is taken to use only long clean straw, and to allow no chaff to be dropped about the yards, as it spoils the wool for sale later on. For cases of protracted labour ergot of rye has been used with tolerable success, but such success is not invariable, especially when the ewe carries a dead lamb. We have been able to withdraw such lambs from the womb, even when in a state of partial decay, by careful manipulation, but the shepherd requires two assistants to support the ewe during this trying operation, and he must be very gentle and patient. The withdrawal of the foetus is immediately followed by careful washing of the vagina with warm water, and one or two applications of warm carbolised oil with the syringe. If the ewe is otherwise healthy, and mortification has not set in, it may be saved by judicious feeding, and by another application or two of the oil. All such invalids are kept in a separate yard with a warm lodge in which the sheep can be shut in very cold or stormy weather.

Twins are not so abundant as they were last year, but the lambs generally are strong and healthy. Grass is plentiful, so are roots, and ewes with strong, forward lambs will now go to the Turnip folds whenever the weather is favourable. We prefer thatched hurdles for the north and east sides of the folds, and if the folds are large an inner line or two of thatched hurdles is always used for shelter by both ewes and lambs. There are plenty of sound green tops for the lambs, and some bran will be given them outside the folds as soon as they can eat it. Once get them well started upon the Turnips and bran, and growth quickens perceptibly. Good suckling, too, is of the utmost importance, and all care must be taken to sustain ewes well, and not suffer them to fall off in condition.

RATS AND OTHER VERMIN.

IF editors of periodicals and newspapers have really the intention of doing good, more than filling up the pages of their papers with quotations, they should give the article by your agricultural correspondent in last week's issue full publicity; it might perhaps have the effect of showing the true cause of the balance-sheet indicating a loss, by the inroads of vermin through carelessness and sheer laziness. If farmers were only partly as careful in preventing grain being destroyed as they are in protecting prize cattle, there would be no one more astonished than themselves at their good fortune, by simply taking thought and action to destroy vermin, and preserve the grain which they depend upon for a living. Exactly fifty years ago I lent a hand to the killing of 180 rats in a Wheat stack, and many escaped. The stack was completely tunnelled throughout, and not less than ten bolls of Wheat destroyed, which at

that time would be about £20 sterling. The rats that escaped fled to other premises, and destroyed many fowls and rabbits.

When rats take possession of buildings, allure them to one apartment having one entrance only fitted with a trap door. Feed the rats here on dainties, meat and drink, for the latter, if of the right sort, is enticing. After a few nights' regaling, draw the string, the trap goes down, and the rats are at your and dogs' mercy.—W. T.

OUR LETTER BOX.

Breaking up and Laying down Pasture (T. S. R.).—As you give no special reason for your alarm about wireworm in the soil of the old pasture ploughed a fortnight ago we may remind you that it by no means follows that because you have ploughed in turf you should have trouble from wireworm. If much wireworm has been seen during the ploughing it would answer best not to sow Oats this season, but rather to apply a dressing of 5 or 6 cwt. of salt per acre, and sow White Mustard 20 lbs. to the acre, to be folded with sheep as it comes into flower; then plough and leave it to nature till the following spring, and then lay it down to pasture with a crop of Oats. Good seeds may be had from any of the specialists advertising in our columns. If the old sods are not infested with wireworm then sow Oats as you propose, now drilling in with the seed corn 1 cwt. nitrate of soda, $\frac{1}{2}$ cwt. muriate of potash, $\frac{1}{2}$ cwt. mineral superphosphate, $\frac{1}{2}$ cwt. steamed bone flour to induce strong growth and a full crop, and sow the grass mixture for permanent pasture immediately after the corn is sown. The best horned cow after the Jersey is the Guernsey. In the opinion of many it is even better than the Jersey, for it is a larger animal and gives a proportionately larger quantity of very rich milk.

Manure Queries (T. M.).—"Nitrogen for Mangolds. Applied as a manure for Mangolds (with others) is sulphate of ammonia preferable to nitrate of soda or guano?" This question is timely and important, for the influence of nitrogenous manures upon Mangolds is remarkable, and it has been proved beyond question that nitrate of soda is the best form in which it can be applied to that crop. In the Rothamsted trials an average of 13 tons 17 cwts. of Mangolds for eight years was the result of a dressing of nitrate of soda alone, or 6 $\frac{1}{2}$ tons more roots than ammonia salts, and 2 $\frac{1}{2}$ tons more per acre than was obtained from the use of nitrogen in any other form. Pray understand that we do not recommend the use of nitrate of soda alone, but in combination with mineral manure and dung. We have frequently called attention to the value of dung for this crop, for its moisture as well as its fertility, and we always use it and sow on the ridge if possible. Perhaps the most satisfactory result of the eight years' average at Rothamsted was that of 23 $\frac{1}{2}$ tons of Mangold from a yearly dressing of 14 tons of dung, 3 $\frac{1}{2}$ cwts. superphosphate, and 550 lbs. nitrate of soda. We may remind you that the action of sulphate of ammonia is slower than the nitrate, yet it is quite possible that it might induce equal results if used in a moist climate or very wet summer. Sulphate of ammonia may be kept for a year without serious deterioration in a thoroughly dry store house with damp proof floor and walls. A moderate quantity of salt might be added with advantage to the manure mixture for grass, if used early before free growth begins. It is an admirable solvent, as well as a valuable fertiliser, and it will in future be used freely in all compound manures, for arable land especially. Basic slag would certainly be useful as a dressing for fruit trees, and it would answer for Strawberries if applied to a new bed, where its beneficial action would tell with the full development of the plants.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

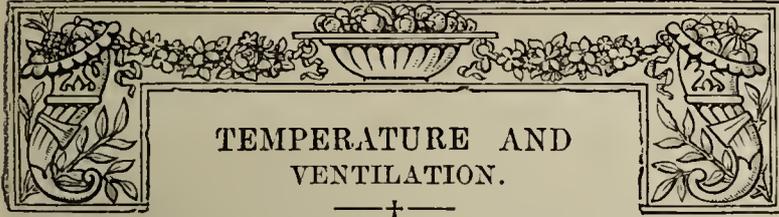
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1890. February.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	16	29.752	38.2	36.8	E.	36.4	47.9	33.2	76.3	23.4	—
Monday	17	29.827	39.1	37.7	E.	37.1	43.9	37.8	65.9	32.6	—
Tuesday	18	30.122	39.8	38.6	E.	37.9	47.4	37.9	74.4	31.9	—
Wednesday ..	19	30.281	38.6	37.3	E.	37.9	44.5	36.9	66.3	31.4	—
Thursday	20	30.100	37.4	35.9	E.	37.9	38.9	35.1	41.9	19.6	0.023
Friday	21	30.190	34.4	34.3	E.	37.9	40.1	33.8	44.9	31.7	—
Saturday	22	30.478	38.4	37.7	N.E.	38.1	43.5	34.1	57.2	31.1	—
		30.107	38.0	36.9		37.6	44.5	35.5	61.0	31.8	0.023

REMARKS.

16th.—Fine, with frequent sunshine.
17th.—Cloudy morning; bright afternoon.
18th.—Fine and generally bright.
19th.—Bright and fine.
20th.—Dull early; damp and showery all day.
21st.—Dull and slightly foggy all day.
22nd.—Overcast throughout.

A dry but rather cloudy week; little range of temperature, and the mean remarkably near the average.—G. J. SYMONS.



TEMPERATURE AND VENTILATION.

—+—

AT all seasons of the year when plants or fruits are grown under glass it is absolutely essential to success that due attention be paid to the maintenance of suitable temperatures and atmospheric conditions for meeting the requirements of whatever may be under cultivation. During the summer, or ripening period, fluctuations in temperature are far less injurious than in spring, yet at no time can the work of regulating the heat and controlling the moisture in plant and fruit houses be ignored with impunity. It is true that as summer advances firmness of growth increases, and the firmer it is the safer it is against injury by the weather changes incident to the season; but even then errors or neglect lead to unfortunate results in the scorching of foliage, the premature decay of fruit, or the increase and establishment of a scourge of insects. All that will be granted by experienced men. A gardener must be on the alert at all times. He must be quick to perceive slight deviations from the routine of safety, and prompt to take action for the prevention of untoward occurrences that he may foresee to be imminent as the consequence of an accident or mistake. Necessary as is the habit of watchfulness on the part of the gardener, at no period of the year is it so essential as at the present time. Growth now in Vines and plants is forced growth, and in proportion to the forcing is the tenderness of that which is forced, and therefore its liability to injury by checks and chills that are bound to follow errors in judgment or inattentiveness in duty.

When a wave of winter invades the months of spring, as often has been the case, and doubtless will be again, then is the time for testing the value of the services of men who are entrusted with the charge of forcing operations in gardens. The earnest, anxious, watchful man is seldom taken by surprise. He appears to sniff danger in the air and prepares to meet it. It may come in the form of extreme weather changes more quickly than he expects, and with greater destructive power; but if expected and provided for, ill effects if not entirely frustrated will be considerably palliated. A period of abnormally mild weather is apt to throw men off their guard and engender a feeling of false security, and the longer the favourable conditions continue the greater the danger of a surprise that may end in disaster.

The weather for some days past has been of the most "trying" description for gardeners whose Vines, Cucumbers, Melons, and various tender plants under glass made good progress during the milder term preceding. The driving icy winds and storms of sleet have sought entrance through every chink and cranny, and lowered the temperature in many a structure to a dangerously low point for the tender occupants. This may not have been preventible in all cases, for in some structures imperfections are apparent, and in others the means of heating are obviously deficient to the practised eye. In such cases the gardener—who is a zealous man, and does all that is in his power with the aid of such coverings as he can devise, and sitting up half the night to save his crops and reputation—is profoundly to be pitied if he fails; and when such men who make those efforts do fail, as has more than once happened, they are the victims of circumstances, and it is neither right nor reasonable that they should suffer for failings not their own; but, on the other hand, when all that is needful is provided for the satisfactory conduct of operations under sudden and extreme weather vicissitudes it is strictly reasonable to expect that advan-

tage be taken of the provisions, and failure in this can only have one result—loss of reputation.

When Vines, for instance, are in full growth, either advancing to or passing through the flowering stage, a sudden and extreme fall in temperature may have unfortunate results, and especially if the temperature long remains so low that the leaves are seen to be suffering by a tendency to droop. This condition of the foliage demonstrates stagnation of the sap. It has for the time, in consequence of the cold, lost its fluidity, and cannot perform its health-giving mission. The check thus sustained by Vines at a critical time may not be recovered from throughout the season. When it arises through defects in the heating arrangements, and not inattention, it is clear the Vines were started into growth too soon. Many are the mistakes that have been made by attempting too early forcing in the absence of adequate means for carrying it to a successful issue, and it is far better under such circumstances to wait a few weeks and succeed at last, than to commence action too soon and fail.

Almost every spring a time comes when, under the best of attention, the requisite temperature in vineries and forcing houses can scarcely be maintained, and never without an extravagant, not to say outrageous, consumption of fuel. Yet the structures are supposed by the owners of them to be "well heated." They are under a mistake. When the fires in garden furnaces have to be kept in full blazing power as if for generating steam for propelling an ironclad or locomotive at full speed, that fact of itself is more powerful than all the arguments which can be advanced that either the boiler is too weak for its work, or the pipes are insufficient for the distribution of the heat required. Reducing the boiler power and piping in garden structures to the lowest possible limit, though a few pounds may be thereby saved at the outset, is a costly mistake, for apart from the liability of a breakdown, that is always a contingency not very remote under high pressure working, it increases the fuel bill enormously, and the imagined gain at the outset involves an immeasurably greater loss in the end. Moreover, the heat radiated from pipes in which the water is near the boiling point is, comparatively speaking, inimical to vegetation, for it deprives the atmosphere of moisture, and renders it specially suitable for insects.

While it is fair to recognise structural imperfections, defective arrangements, and initial obstacles to efficient working, the very important practical question arises—Is the best done that can be done with the means provided? It is clearly the duty of all men to act in accordance with the obligations thus involved, and there cannot be a doubt that gardeners, as a body, conscientiously and resolutely endeavour to make the best of the means placed at their disposal. If they did not they would not merit their positions. Most of them, however, are quite alive to the circumstances of the case, and know very well that the greater the difficulties they have to contend with, the greater is the credit in succeeding in spite of them. Hence the strenuous endeavours that men make under adverse conditions to show results equal to their fellow workers who are more favourably situated. It does not follow they succeed in this, but the effort to do so is in the highest degree commendable. It is very often a case of making bricks without straw, and it is questionable if any better adepts at this are to be found than within the gardening ranks. But all are not alike. Some are more lethargic than others, more prone to run risks, more self-indulgent, slower to discern the full force of small matters and what they regard as trivial mistakes; and it may safely be said that these are not men who are likely to attain to very high positions in their calling.

The provision and maintenance of suitable temperatures and atmospheric conditions in forcing houses at the present time are matters of the highest importance. It is impossible to devote too much thought to the work in question. It cannot be successfully conducted by clockwork or in a perfunctorily routine way.

Making up fires at a particular time regardless of their condition at that time, of the temperature of the structures, heat in the pipes, also of the present and prospective state of the weather, is wrong. All these things have to be considered, and are considered by men who acquit themselves the best in the work in hand. One person will wait an hour or more to have his fires in the best state for making up, while another fails to see the use of being so particular, and acts accordingly, trusting to chance that all will be right. In all cases of doubt as to the temperatures in the morning the man who intends to gain a reputation for trustfulness will prefer being out an hour or two too soon to half an hour too late. In the former case the man is master of the position, in the latter the position is master of the man.

It would be amusing if it were not painful to see the frantic efforts a man will make late in the morning to atone for his negligence on the preceding night. It is true he succeeds in raising the temperature and having the pipes hot by the time the sun is hot too. That is exactly what should be as far as possible avoided, for fuel then is worse than wasted, as the heat generated in the pipes is harmful rather than beneficial. Under the combined influence of fire and sun the temperature increases so rapidly that a choice of evils or dangers has soon to be made—namely, overheating on one hand, or excessive ventilation on the other. The less of this that is needed the better during winter weather in the forcing season. Widely opening the sashes for admitting a great inrush of cold, and consequently displacing an equal volume of warm moist air, is distinctly injurious to tender growth.

Much has been said for and against what are known as fixed temperatures at fixed times. As all experienced gardeners know, absolutely fixed temperatures—that is, no deviation from those prescribed—are not necessary for purposes of cultivation, and, moreover, cannot be insured; but for purposes of discipline rules are essential, and the more closely they are adhered to, subject to intelligent departures in accordance with verbal instructions, the more competent a workman becomes in the important duties with which he is entrusted in providing the conditions for healthy growth in fruit and plant houses during sharp frosty nights and bright sunny days in spring. No pretence is made of giving details for action, general principles only being considered, and these are conceived after several years of practice to be sound by—AN OLD HAND.

FLOWER CULTURE FOR PROFIT.

CHRYSANTHEMUMS.

(Continued from page 147.)

To succeed well with these the plants ought to be raised early and otherwise treated very much as are the plants that produce the prizewinning blooms. It is not yet too late to root a quantity of cuttings in boxes as being the least trouble, or pricked out in hand-lights or singly in small pots, gentle heat being desirable in order to expedite matters. Directly the plants are well rooted place them singly into 3-inch pots, keep them growing steadily on greenhouse shelves or other light positions, shift into 6-inch pots before they become badly root-bound, and harden off by the end of May. The final shift into 10 inch pots must not long be delayed, the plants being then set on a bed of ashes in double rows where they can be eventually supported by wires or longitudinal stakes in addition to a single upright stake placed early to each plant. From first to last no pinching back or stopping should be resorted to, the single stem as it lengthens and strengthens branching naturally. Select from six to a dozen of the side shoots, according to the vigour of the plants, remembering also the fewer shoots retained the finer the blooms eventually obtained, and loosely attach these to the stake. Some of the forwardest may, perhaps, show a bud in July or very early in August, but these may well be allowed to disappear again.

The crown buds showing from the middle of August onwards are what must be taken good care of, all the embryo side shoots but one surrounding these being carefully removed as early as possible. If this timely removal results in the swelling of the flower bud, also remove the other side shoot, otherwise the latter must be allowed to extend and form buds which this time will be easily preserved. Whether these late buds are surrounded by wood

buds or flower buds, all but the central one must be early picked out, and the plants being assisted with liquid manure will soon plump up those reserved. All must be housed before severe frosts are experienced. The plants may be arranged somewhat thickly in Peach house, vineries, or other high airy structures, a good circulation of air being maintained, in dull damp weather especially, with the aid of fire heat, the front and top ventilators being opened little or much, night and day, according to the external temperatures.

For about a fortnight before Christmas, and for any length of time subsequently, there is an exceptionally good demand for Chrysanthemums, red and white ones especially being largely used for church decoration. The specimen blooms realise relatively the best prices, though not more than 6s. per dozen are allowed, while the ordinary, or those obtained from non-disbudded plants, fetch from 1s. to 2s. per dozen wholesale in each case. There are now abundance of good late varieties, as far as light shades, but a good red variety would be a boon to market growers. J. Délaux, I believe, is fairly suitable, and this, however, not being strong grower, and only fit for producing large blooms, and Garnet. Other varieties suitable for producing late specimen blooms are Meg Merrilies, white; Ralph Brocklebank, yellow sport from the latter; Ethel, white; Yellow Ethel; Fanny Boucharlat, silvery white; Mrs. C. Carey, white; Carew Underwood, Baronne de Prailly, lilac; Belle Paule, white edged rose; Duchess of Albany, Grandiflorum, yellow; Moonlight, creamy white; Gloriosum, yellow; Prince of Teck, incurved white; Lord Eversley, incurved pure white; Hero of Stoke Newington, incurved purplish blush; Mrs. Norman Davis, incurved yellow; Fleur de Marie, white Anemone-flowered, and Lady Margaret, white Anemone-flowered. The only material difference in the treatment of these and the earlier flowering section, just previously alluded to, consists of taking the buds from a fortnight to three weeks later. Belle Paule, Meg Merrilies, Ralph Brocklebank, Ethel, Yellow Ethel, Mrs. Carew, Gloriosum, J. Délaux, and the "Teck family" are naturally late, and if the buds of these are taken about the first week in September, and the plants not forced in any way, they will rarely be past their best at Christmas. The other varieties, as well as many not mentioned, if prevented from swelling buds to the middle or third week in September, this being a comparatively easy matter, would also be at their best late in December. Some of our late taken buds of Belle Paule, Baronne de Prailly, and several other varieties were followed by nearly as fine as those which expanded early in November.

In addition to most of the previously mentioned late varieties, there are others particularly well adapted for growing in the ordinary manner. Fair Maid of Guernsey can be had very late, but on the whole the best late white for growing in quantity is the sturdy growing Boule de Neige, and a very fine companion will be found in Golden Gem, a rich bronzy yellow variety, and perhaps the most beautiful of all naturally late Chrysanthemums. These may be grown very much as advised in the case of the early varieties for bunching purposes, the latest stopping being made soon after all are turned out into the open. Golden Gem is also of sturdy growth, and if the plants are not stopped in any way, but are allowed to branch naturally, grand sprays of bloom can be had from them as late as the end of January, when these are worth not less than 6d. each, and are in great demand for ladies to wear. Late Chrysanthemums ought not to be overfed, strong liquid manure forcing them on rapidly, nor is it safe to retard in very cold or unheated houses. Give them a fair amount of fire heat, or sufficient to dispel damp, and abundance of light and fresh air. The tall plants that have produced a few rather early specimen blooms will, if kept in a moderately warm airy house, yield a number of serviceable side blooms down a considerable length of the stems, especially if not too closely disbudded, and very often many of the suckers thrown up from the roots will also form good flowers.

Any fairly good loamy compost will grow Chrysanthemums, but they will repay for liberal treatment in this respect. A mixture of two parts light loam to one of good leaf soil, with sharp sand added, is suitable for the cutting pots and boxes, and also, though in a somewhat rougher state, for the earlier shifts. For the flowering pots, the loam used ought to be of a fibrous and not too clayey character, and roughly broken up, the finer portions being discarded. To three parts of this add one part of leaf soil and partially decayed horse manure, and quarter-inch bones or bone-meal, at the rate of an 8-inch potful to every bushel of compost. The less fibrous the loam the more leaf soil should be added, and a very fibreless loam would be improved by the addition of coarser bones, charcoal, or crushed oyster shells. A good layer either of the latter or half-inch bones ought to cover the drainage crocks in the flowering pots, and the potting should be carefully and firmly

done. A little clear soot water administered occasionally after the soil is well occupied by roots usually sustains a healthy foliage, and a top-dressing of turfy loam and horse manure will do good in August. Good and careful watering, accompanied by frequent overhead syringings on hot days, and judicious applications of liquid manure after the buds are set, will do the rest.—M. H.

ON THE FLOWERING AND FLOWERS OF APPLES.

As the seasons come round we occasionally hear it said in early summer "There will be no Apples this year, the flowers having been destroyed by the spring frosts." In a paper which I read recently before the Society of Arts, London, on "Fruit Culture for Profit in the Open Air in England," I called attention to the fact that there were many days' difference in the date of unfolding of the blossoms of the different varieties, and that the general opinion was that the blossoms of the early blooming kinds were often destroyed when the late ones escaped. This is no doubt partially true, but not absolutely so, nor sufficient alone to account for a full or partial crop. There are other facts in connection therewith which I illustrated by the flowers of Peaches and Nectarines which were in bloom at the time the paper was read, and which is equally applicable to Apples. There is a difference in the size and substance of the petals which, to borrow a comparison from our own articles of dress, may be compared to that between a full and meagre, a thick and thin coat, and further in the form of the flowers, which if cupped or expanded may be compared to the difference between a buttoned and an open coat. So satisfied was I that these latter peculiarities influenced the crop of fruit that in the spring of last year (1889) I thought it worth while to note carefully the date of flowering, the size, shape and substance of the flowers and petals of some ninety-five varieties of Apples growing in precisely the same position and climate, and this table I now submit to the public.

DATE OF FLOWERING, NAME, SIZE AND SHAPE OF FLOWERS, SHAPE OF PETALS, SUBSTANCE OF PETALS OF NINETY-FIVE VARIETIES OF APPLES.

Column 1.—Size of flowers, S. small, M. medium, L. large.
 Column 2.—Shape of flowers, Exp. expanded, Cup. cupped.
 Column 3.—Shape of petals, N. narrow, M. medium, B. broad.
 Column 4.—Substance of petals, M. medium, Thick, Thin.

Date.	Name.	Size.	Shape of Flower.	Shape of Petals.	Substance.
May 1	Irish Peach	L.	Cup.	B.	Thick
May 5	Duchess of Oldenburg	L.	Cup.	N.	Thin
May 7	Flower of Kent	L.	Cup.	B.	Thick
	Summer Thorne	M.	Cup.	M.	Thin
	Keswick Codlin	M.	Cup.	M.	Thin
	Beauty of Waltham	L.	Exp.	M.	Thin
	Red Ingestrie	L.	Cup.	M.	Thin
	Tower of Glamis	L.	Cup.	B.	Thick
	English Codlin	M.	Cup.	B.	Thick
	Hanwell Souring	L.	Exp.	B.	M.
	Hubbard's Pearmain	S.	Exp.	M.	Thin
	Red Astrachan	L.	Exp.	M.	M.
	Oslin	L.	Cup.	N.	Thick
	Golden Spire	M.	Exp.	N.	Thin
May 9	Keddleston Pippin	M.	Exp.	N.	Thin
	Kerry Pippin	L.	Exp.	B.	Thick
	Lord Suffield	L.	Exp.	M.	Thick
	Devonshire Quarrenden	M.	Cup.	M.	M.
	Manks Codlin	M.	Cup.	M.	Thin
	Pitmaston Russet Nonpareil	M.	Exp.	M.	Thin
	Bedfordshire Foundling	S.	Exp.	N.	M.
	Warner's King	L.	Exp.	B.	Thick
May 11	Old Golden Pippin	M.	Exp.	N.	Thin
	May Queen	L.	Cup.	B.	M.
	Emperor Alexander	M.	Cup.	M.	M.
	Scarlet Nonpareil	M.	Exp.	M.	Thin
	Adams' Pearmain	M.	Exp.	M.	Thin
	Dutch Mignonne	L.	Exp.	M.	M.
	Jolly Beggar	M.	Cup.	N.	Thick
	Ringer	M.	Cup.	M.	Thick
	Yellow Ingestrie	S.	Exp.	N.	M.
	Brownlee's Russet	M.	Exp.	B.	Thick
	Stirling Castle	L.	Cup.	M.	Thick
	Queen	L.	Exp.	M.	Thick
	Baumann's Red Reinette	M.	Exp.	M.	M.
	Sturmer Pippin	M.	Exp.	N.	Thin
May 15	Royal Russet	L.	Cup.	B.	Thick
	Bramley's Seedling	L.	Cup.	B.	M.
	Old Golden Reinette	M.	Exp.	M.	M.
	Greadier	L.	Cup.	B.	Thick

Date.	Name.	Size.	Shape of Flower.	Shape of Petals.	Substance.
May 15	Lemon Pippin	L.	Exp.	M.	M.
	Boston Russet	L.	Exp.	M.	M.
	Nonesuch	M.	Exp.	M.	Thin
	Betty Geeson	L.	Cup.	M.	Thick
	Calville Blanche	S.	Cup.	N.	M.
	Norfolk Bcefing	L.	Exp.	B.	M.
	Dredge's Fame	L.	Exp.	M.	Thick
	Lamb Abbey Pearmain	M.	Exp.	M.	Thin
	Warwick Pippin	M.	Exp.	N.	Thin
	Yorkshire Greening	L.	Cup.	P.	Thick
	Minchall Crab	L.	Cup.	M.	Thick
	Cellini	L.	Cup.	B.	Thick
May 18	Cox's Orange Pippin	L.	Exp.	M.	M.
	Rymer	L.	Cup.	B.	Thick
	Blenheim Pippin	L.	Exp.	M.	Thick
	Dumelow's Seedling	L.	Exp.	B.	Thick
	Cox's Pomona	L.	Cup.	B.	Thick
	Sam Young	M.	Cup.	M.	M.
	Lord Burleigh	L.	Exp.	M.	Thin
	Forge	L.	Cup.	B.	Thick
	Margil	M.	Exp.	M.	M.
	Reinette de Canada	L.	Exp.	M.	M.
	Lewis's Incomparable	M.	Cup.	M.	M.
	London Pippin	M.	Exp.	M.	M.
	Herefordshire Pearmain	M.	Cup.	M.	M.
	Gloria Mundi	L.	Exp.	M.	Thick
	Allen's Everlasting	M.	Exp.	N.	M.
	King of the Pippins	L.	Exp.	M.	M.
	Beauty of Kent	L.	Exp.	M.	Thick
	Mabbott's Pearmain	M.	Exp.	N.	M.
	Court of Wick	L.	Exp.	N.	M.
	Golden Noble	L.	Cup.	B.	Thick
	Fearn's Pippin	M.	Exp.	M.	Thick
	Ecklinville	M.	Cup.	M.	Thick
	Mannington's Pearmain	L.	Exp.	M.	Thick
	Peasgood's Nonesuch	L.	Exp.	M.	Thick
	Loddington	L.	Exp.	B.	Thick
	Lord Derby	L.	Cup.	B.	Thick
	Golden Pearmain	M.	Exp.	M.	M.
	Duke of Devonshire	L.	Exp.	M.	Thick
	Yorkshire Beauty	L.	Exp.	M.	Thick
	Annie Elizabeth	M.	Cup.	M.	M.
	Northern Greening	M.	Exp.	M.	Thin
	Red Juneating	L.	Cup.	B.	Thick
	Worcester Pearmain	M.	Cup.	N.	M.
	French Crab	M.	Exp.	N.	Thick
	Small's Admirable	M.	Cup.	M.	Thick
	Cockle's Pippin	N.	Cup.	M.	Thin
	Alfriston	M.	Exp.	M.	M.
May 21	Court pendû Plat	M.	Exp.	M.	Thick
	Galloway Pippin	M.	Exp.	M.	M.
	Lady Henniker	L.	Exp.	M.	M.
	White Juneating	M.	Exp.	B.	Thin
	Bess Pool	M.	Exp.	B.	Thick
	Northern Spy	L.	Exp.	M.	M.

The first column relating to the size of the flowers requires no further comment than that a large flower surrounding and in close proximity to the organs of fructification would have a greater protecting influence than a medium sized or small one. The second column relating to form is still more important from this point of view. It must, however, be remarked here that the flowers of some sorts are "cupped" from the time they open till they fall, whereas others are "cupped" when opening, gradually passing into the "expanded" form, and others, again, are expanded from the beginning till they fall.

The third column relates to the size of the petals which compose the flower, some being narrow, leaving openings between them, others closing completely, and some even overlapping. In the latter cases there is, I apprehend, a much larger amount of protection afforded to the delicate embryo. The fourth column relating to the substance of the petals cost me the most thought and time. The difference here is in some cases so slight as to require a very sensitive touch to realise, although I believe it is not without influence on the crop.

Many inferences may be drawn from the facts recorded in the above table. I will only instance one. The popular opinion that early flowering sorts should be avoided would seem not absolutely correct. Two of the earliest flowering sorts, "Irish Peach" and "Duchess of Oldenburg" are constant bearers, which is due probably to the protection the embryo receives from their large cup-shaped flowers; whereas two of the latest flowering sorts, "Bess Pool" and "Northern Spy" are shy bearers, which may be due to their natural constitution, but is open to the suspicion of being influenced by the later frosts on the organs of reproduction which are less efficiently protected. But here, as in all

cases of this nature, exceptions will occur.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, Herts.*

SPINACH.

WHERE Spinach is wanted all the year round it requires some attention to have an unbroken supply. The two periods which are the most likely to see a scarcity being during winter or early spring, and in early autumn or late summer. The winter and spring season can only be bridged over by means of one or two large sowings, and the warm season by small sowings made at short intervals. I do not know whether the having a somewhat light soil to deal with has anything to do with it, but the fact remains that this is one of the most troublesome of all vegetables, and my experience shows that it is necessary to divide its cultivation into two fairly well defined sections, the first for the summer and autumn supply, and the second for winter and spring.

The earliest sowings present no difficulty. A few dozen yards in lines made every ten days, beginning with the first suitable weather in February, secures an ample supply to come in the beginning of May and before the autumn sown crop is fairly over. About the end of May the fresh sowings need special attention, and right on through the summer months extra care is needed. If there is time for the work shallow trenches should be made wide enough to get two rows in at 10 inches apart. In the bottom of the trench a thickness of 4 inches of decaying manure should be placed, 3 inches of soil above that, then the seed, and another 3 inches of soil, leaving a hollow of about a couple of inches below the general level. If weather be dry the bottom of the trench should be watered before placing in the manure, and the soil on which the seed rests must be moistened before sowing, though it is not necessary to moisten the top layer. The seed very soon germinates, and if the plants are 4 to 6 inches apart that will be quite close enough. Whenever drooping is noticed water must be run down the middle of the trench; it need not be much, only sufficient to moisten the manure. This treatment gives medium-sized leaves and staves off flowering.

The winter supply is sown on soil which has been cropped with second early Potatoes, and the seed is sown from the beginning of August until the beginning of September. In some seasons the earlier sowings do better than the latest, in others it is just the reverse; but all sowings made during the period between these dates do well. No dung is given to the crop, as richness of soil at this season is not wanted, but rather a short firm growth. The young plants should be thinned from 6 to 9 inches apart, and the rows must be at least 12 inches the one from the other. Instead of rows a few dozen yards long in the aggregate the winter crop must be of some magnitude. Where constant pickings, say from three to five a week, are made all through the winter it requires a good quantity of plants to bridge over the season of non-production of foliage, 25 to 30 square poles not being too much. In picking only a few leaves should be taken off a plant at one time, and these well developed. When growth sets in on the return of spring a slight dressing of nitre will be found of great benefit in quickening growth. The crop can, of course, be partially destroyed when leaf production sets in vigorously, and the entire crop should be off the ground before the flowering stems make progress, as at this stage Spinach becomes an exhausting crop. As to the best variety to grow, and where one has to give "substitutes" the go-by, there is something in a variety slow to rush into flower. The most promising I have tried, and I have tried every variety I have seen offered, is one named "Paresseux de Catillon." This, the common round-leaved for spring and winter, the prickly seeded for the latter season, and the monstrous Viroflay, are the varieties I am growing this year.—B.

TREATMENT OF MANURES.

MR. BISHOP'S treatment of artificial manures is rancorous; he never omits an opportunity of abusing them, and never assigns any substantial reason for so doing. He says that while with most artificial manures some fail, home manure is sure to suit the soil in its district (implying, I suppose, that out of its district it might not be so suitable). He appears to have been much struck at seeing an artificial manure manufacturer dressing his land with farmyard manure. I should have been equally struck if the manufacturer had not utilised his home manure. No one disputes the value of farmyard manure, but that is no reason for abusing another manure as good or better. Mr. Bishop goes on to say that in his opinion more disease has been created amongst vegetation by artificial manures than we are aware of, but gives no justification or explanation of this mysterious charge. In the opinion of many

gardeners, and others equally well informed, insects are created by those dull, heavy days when they knowingly inform us there is a blight in the air, and subsequently with great satisfaction to themselves prove their statements by showing the presence of the insects on the various plants. To me it appears that the two opinions are of equal value.

All manures sold as artificial are not suitably compounded for the several crops for which they are intended; some are not genuine and others are used unskillfully. In such cases failures may be expected.

Much ignorance prevails both as to the nature and the proper application of artificial manure. There are some who are so ignorant as to suppose that because a very small quantity of manure produces a beneficial effect therefore a much larger quantity will give a much better result. Others imagine that because such manures as superphosphate of lime, sulphate of ammonia, or nitrate of soda are under certain circumstances most powerful fertilisers they are equally so under all. A plant is a complex structure of many materials, all of which are indispensable and very rarely interchangeable (in certain plants, principally those which grow in proximity to the sea potash takes the place of soda when they are cultivated inland). The principal materials which specially require the attention of the cultivator are phosphorus, potash, and lime, together with nitrogen. The other materials not less indispensable are usually present in sufficient quantities in ordinary soil.

The most fertile soil contains but a limited quantity of these materials, and each successive crop reduces that quantity until the time arrives when sufficient of one or more of them is no longer present, then manure becomes necessary; but it is useless to supply superphosphate if there be not sufficient potash, or nitrogen if one or more of the other materials be absent, consequently many have failed with artificial manures through omitting to supply the deficiencies of the materials necessary to perfect the structure of the plant. If only one constituent of a plant be absent from the soil, though a full supply of all the others be present, the plant will not thrive or even grow. This explains many failures attributed to artificial manure, which are in reality not due to the manure, but to the ignorance of those who apply it.—EDMUND-TONKS.

NOTES ON EARLY ENGLISH HORTICULTURE.

(Continued from page 41.)

LONDON and Wise, chief gardeners during what might be called the Dutch era in our country, left their impress on many establishments besides their own, for their services were much sought after by the patrons of horticulture, yet their style was only temporary. Addison, greatly charmed by some changes Wise had made in the old part of Kensington Gardens, where he transformed a series of gravel pits into winding and terrace walks, compared him to an epic poet. Certainly his poetry did not long continue in fashion, the formality of the arrangement of gardens under this régime had a quaintness and oddity about it, but it was too artificial to be pleasing. Perhaps Blenheim Gardens, as they, till about sixty years ago, presented one of the best examples of planning done by this firm. The principal flower garden was a copy of one at Versailles; a lake or large pond occupied the centre, and it was surrounded by circular paths, with shorter ones connecting these. Wanstead House, Essex, once notable as the residence of Wellesley Long Pole, was another place laid out by London and Wise, and its park was considered a fair sample of their arrangement of avenues and shrubberies.

Hampton Court grounds were placed by William III. in the hands of these gardeners for re-arrangement; they are supposed to have planted its labyrinth or maze, though some think this of older date, and formed terraces in the privy or private garden, cutting and disfiguring also many of the evergreens which had been introduced by Stuart gardeners. They constructed pits in the kitchen garden for the production of early vegetables by earth heat, then a common practice. One device of the gardening of that age was certainly a good one; this was the placing here and there what were known as "prospect towers," not usually carried to any great height, but structures with seats, so far elevated that a garden or path could be viewed in a different aspect from what they present at the ordinary level of the eye. It was when the taste for the Dutch style was fast dying out that Dr. Blackwell, possibly a pupil of Wise's, an Aberdeen man, of somewhat versatile genius, engaged to lay out the grounds of Canons, near Edgware, where the wealthy Duke of Chandos built a mansion in 1712 (though some have conjectured that the work was chiefly done by the architect James, of Greenwich, who may have studied horticulture, as he translated Le Blond's book on agriculture).

However that may be, Dr. Blackwell was in the Duke's employ; he was acquainted evidently with botany and ornamental gardening, closing his life very singularly in Sweden, where he was executed for a supposed plot against the Government. His widow did some service to horticulture, as we shall see hereafter. The gardens of Canons speedily became the talk of the country all the more because they were satirised by Pope.

"His gardens next your admiration call,
On every side you look, behold the wall!
No pleasing intricacies intervene,
No artful wildness to perplex the scene;
Grove nods at grove, each alley has a brother,
And half the platform just reflects the other;
The suffering eye inverted Nature sees,
Trees cut to statues, statues thick as trees."

It may appear odd to attribute any influence upon British horticulture to such men as the poet Pope, and Addison, distinguished in prose, but both did service by showing what were the principles which good taste invites us to follow. Addison threw out hints in several of his essays, and Pope's paper on "Verdant Sculpture" in the *Guardian* led men to see how foolish it was to study how trees and plants might be treated unnaturally, whether singly or in groups. Nor were they simply theorisers, each tried practical experiments upon a small scale; Pope at Twickenham, where he managed to do a great deal within the limited space of two acres. Addison had a retreat at Bilston, near Rugby, Warwickshire, and his walks and gardens remained many years intact after Pope's were swept away. Two things they specially opposed—the introduction of many needless walls, because shrubs could be so arranged as to shield each other from cold winds, and also that wholesale lopping which weakened many species, besides disfiguring them. Stephen Switzer, who had worked for a time under London and Wise, and followed their methods, seems to have been one of the first to adopt those improvements which led on to the modern style of gardening. Our forefathers had the odd idea that we were indebted to the Chinese for the change, but in fact the so called Chinese style was in some respects quite as stiff as the Dutch. Switzer had a garden at Millbank, near Westminster, and apparently a shop opposite the Court of Common Pleas, with a sign of "The Flower Pot," and was one of the early seedsmen. Amongst other things he found time to publish a work in three volumes entitled "Ichnographia," illustrated by copperplates, containing particulars of the various ways in which the grounds of a residence might be laid out, with a few remarks on agriculture. This came out during 1718, and in 1724 he wrote "The Practical Fruit Gardener," which was followed in 1729 by another work upon the rapid raising of kitchen vegetables.

About the beginning of that century the increasing demand for vegetables in and near London had led gardeners to study methods for hastening crops and obtaining a quick succession. For centuries the bulk of vegetables required in the metropolis was produced on the north and east sides, especially on the former, where, along the City Road for instance, many of the citizens had gardens in which they raised, some of them, more than they needed for their families, and allowed their gardeners to sell the remainder. By-and-by the advantages of the west of London were seen, and particularly its suitable soil and milder temperature. Thus in the district of the neat houses during the reign of William III. (what is now South Belgravia) about 150 acres of land, lying rather low, was kept well fertilised by stable dung chiefly put on, it is said, at the average of sixty cartloads to the acre. It was the first place where Liguorice was grown in any quantity, and much Asparagus was raised here, the King's pronounced liking for this esculent having brought it into public favour. Evelyn, however, thought the large Dutch kind was not nearly so agreeable as the English kind previously cultivated. He notes the fact as curious that heads were grown weighing from 4 to 7 ounces each. A special variety of Broad Bean became very celebrated, this having been first sown at Windsor by a gardener who received the seeds from Holland. There was an influx of French gardeners also about this time, and one of these introduced the Fulham Pea, long cultivated in the gardens of that suburb; to the French also in that district is attributed the extensive cultivation of herbs used for flavouring.

The historic nursery of Fulham, started by Gray in or about 1700, marked another era in the progress of horticulture. A large number of plants were received here from travellers in both hemispheres, and the firm purchased from the Bishop of London a collection of rare species obtained by Bishop Compton. Though a doubt has been thrown upon the point the evidence tends to show that the first *Magnolia grandiflora* was planted at Fulham, it lived till thirty years ago. The firm had early specimens of the *Ailantus*, the American Nettle Tree, of *Sophora pendula*, *Wistaria*

sinensis, and other species now growing throughout the country. An evergreen variety of the Oak was raised at Fulham, presumably from seed.—J. R. S. C.

LINUM ARBOREUM.

FOR cool houses, such as that in the Royal Gardens, Kew, or in fact any structure where frost can be excluded, this *Linum* is well adapted, and its bright yellow flowers are produced over such a long period of time that the utility of the plant is materially increased. Several *Linums* and their near relatives are already favourites in greenhouses, but *L. arboreum* is not so well known as *L. trigynum*, and its flowers being smaller it would not attract so much attention at first until its merits were recognised. It becomes quite shrubby in habit, attaining a height of several feet, and flowers freely from the apex of the branches.



FIG. 27.—LINUM ARBOREUM.

It is an old inhabitant of botanic gardens, and was introduced from the Levant in 1788 by Dr. John Sibthorp.

Ordinary light loam with a moderate proportion of sand suits this *Linum*; but good drainage is required, and if the soil be somewhat heavy a proportion of leaf soil will be found beneficial. It can be increased by cuttings, but these require care, as they do not produce roots very readily. Seeds are not freely perfected, and for a number of years no seed was obtained from plants in this country. It is not included in the Kew list of seeds available for distribution.

YOUNG TREES IN FROSTY WEATHER.—It not unfrequently happens that fruit trees arrive at their destination just when a severe frost prevails. It is very certain no practical man would think of permanently planting these newly received trees either while the frost is in the ground or when it has only just left it, the state of the ground in both instances being altogether unfavourable for this important work. Should the frost be only just commencing, or only moderately severe, the trees may safely be unpacked, and all be thinly and carefully laid in by the roots in some convenient spot for the time being. For several reasons it is most unwise to lay them in much as received

or in great bundles, but all the roots should have their broken ends cleanly cut off, those much damaged being cut out, and be then evenly surrounded with fine moist soil. A liberal covering of straw litter over the roots and a little over the tops as well will tend to protect from severe frosts and drying winds. Thus treated the roots keep plump and fresh, and if unavoidably kept laid in for several weeks the wounds will also be healed somewhat. To leave the trees in the bales just as received in a dry shed for several days is a very great mistake, as the chances are the greater portion of the roots will become most injuriously dry, and a severe check to the trees be the sure consequence. If the bales cannot be unpacked owing to the severity of the frosts, then ought they to be placed in a moist shed or cellar where no frosts or drying winds reach them, must be unpacked at the first favourable opportunity, and if any of the roots are found to be very dry immerse them in water for five or six hours.—W. I.

FREESIAS.

THESE bulbous plants have several qualifications befitting them for a more prominent and general notice, which may be found in their pure colour, delightful scent, ease of culture, and free blooming properties. It is a matter of surprise that they are not more generally grown, especially seeing that scented flowers are so much sought after, and those unpossessed of perfume, by many persons, lose favour more or less accordingly. That they are easily cultivated certainly cannot be disputed, for they require really a shorter season of growth than even the Primula or Cineraria; the generous provision commonly accorded either of these plants during the actual growing term would command profitable returns for the labour expended, and, moreover, their blooming season is a period when white flowers are greatly in demand.

One error in their culture with many growers is in according them too much coddling or warm temperatures, causing an undue extension of growth, and consequently a weak flower spike. I have hitherto made the same mistake, but a vigorous specimen presented me by an esteemed friend and good grower has prompted a desire to adopt a more rational course in future. Naturally so good an example of culture induces anyone interested to inquire the course pursued, whereby the same results may be achieved, and I was fortunate in having a friend ready at all times to give advice, which has always been found reliable to act upon. His bulbs are selected in sizes for potting in August, placing about six of the largest bulbs in a 5-inch pot; the smaller ones are, when necessary to extend the stock, grown more thickly in the same or larger sized pots for blooming in subsequent years. The soil used for potting is a simple though substantial mixture. Good turfy loam dug from a deer park—what an enviable source of supply!—forms one-half of the bulk, the remainder being made up of leaf mould, pounded charcoal, and sand. The bulbs are covered, though not deeply buried in the soil, and firm potting induces a sturdy growth. They are at once placed in a cold frame together with Lachenalias and Cyclamen, and watered according as the condition of the growth directs. Here they remain as long as the state of the weather allows, or rather until frost makes their well-being uncertain. A shelf in a cool greenhouse is where they pass the early months of the winter, from which they are selected in small supplies of from one to two dozen, choosing of course those most advanced towards blooming, for placing into slightly warmer quarters to excite them into earlier bloom. Strong heat is highly detrimental to them, and should be strictly avoided, and they need at all times a light position for ensuring robustness. As the pots become full of roots liquid manure may be given at every alternate watering, which acts favourably in strengthening the flower spikes. Individual flowers do not last long in perfection, but happily a whole spike is not perfected spontaneously, the decaying flowers being followed by fresh expanded ones in quick succession, thus forming a long continuance of their desirable fragrance. For bouquets, wreaths, sprays, or any kind of decorative purpose they constitute a very conspicuous object, and anyone having such to cater for would probably find an outlay on Freesias a profitable investment.

Some idea may be formed of their floriferous disposition under good and liberal treatment, when it is stated that as many as eighty blooms have been counted on six plants grown in a 5-inch pot, and although this may not represent the average number they do not fall very short of it under the system pursued by the grower previously referred to. Attention to the plants must not be relaxed directly the flowering is over, as in a great measure on this depends the issue of ultimate success or the contrary. Continue watering them so long as growth is apparent, and when this stage is completed allow them to dry gradually, and assume their term of rest without further interference. They may either be stood on shelves in a cool house or in a cool pit after flowering, but wherever it may be let them be so placed as to get the full influence of

sunshine for inducing full maturity, and success must inevitably follow.—W. S.

NOTES ON FRUIT TREES—APPLES.

SINCE 1845 (when I was a stripling of ten and began to read such gardening literature as came within reach) I do not think so much has been written on fruit cultivation during the first four decades as during the last five years. Now everybody seems to have Apples on the brain. In 1848 Dr. Hogg, in the first edition of his "Fruit Manual," drew attention to the benefit to be derived by growers of fruit from a knowledge and adaptation of the choicer and most useful varieties. Since then other editions have appeared, demonstrating that by a judicious selection as fine, if not finer, fruit could be grown in our gardens and orchards as in any part of the world. Every requirement—the connoisseur who sought for quality, and general consumers who value fruit not so much as a luxury but as a necessity of life—are duly catered for, viz., a knowledge of the "characteristics and merits of fruits and fruit trees as they are produced when cultivated among ourselves at home," is given in the later editions, so that our impotence in preventing a foreign fruit invasion is wholly without excuse. Apathy and indifference to the fact that we were importing Apples which might be prevented by utilisation of the resources these isles possessed became awakened by the poor returns to the grower of home produce. The unattractive sour-looking, crab-like produce of the home orchards were driven out of the markets by the cheery, bright, clear skins, good using properties, through size or evenness of sample of the produce from Nova Scotia. Mayors of towns and cities, aided by councillors in public meeting assembled, claimed that the soil and climate of the United Kingdom would grow as fine fruit as that barrelled and exported from America, and all needed was to have attention arrested and interest awakened to the benefits of fruit culture to lift the farmer and small holder of land out of the "slough of despond" in which they had been so long floundering. But it was seen by those who had made a life study of fruits and fruit culture that nine-tenths of what was uttered at meetings or published in the newspapers partook more of the ideas of the enthusiast than of the experienced pomologist. Matter so lavishly distributed was promptly discounted by the "horticultural press." It was pointed out that though fruit can be grown in this country equal to any imported, success only attended intelligent culture, and that, though fruit could be grown at a profit, there was nothing like the money to be made, even in the most favoured circumstances, that enthusiasts imagined. Experts may gain experience by speculation without incurring loss, but the rank and file will be best served by a safe and common sense investment.

In looking at the produce of orchards from a consumer's point of view how many of the varieties grown are comparable to American Apples for any characteristic the consumer appreciates? Large handsome fruits, good alike for cooking or dessert? Having taken note of the varieties that nearest approach the standard in those respects, and comparing the fruit with American, I am urged to the conclusion that, strong as we undoubtedly are in autumn and early to midwinter fruit, we fail lamentably in late winter and spring varieties, when the finer and better kept American Apples tell so disastrously against British produce. Anyone with a garden can have Apples from September to January inclusive, but it is later, from mid-January to May, that large, handsome, well kept fruits of table and culinary utility pay best. That we practically have any at that time comparable to Baldwin, Newtown Pippin, or Northern Spy requires much assurance to affirm. True, we have a number of high-coloured and high-flavoured varieties, which, acceptable and appreciated as they may be to cultured taste, have too much skin and core—too much waste in comparison with the flesh to merit acceptance by the general public—the great factor to be reckoned with in the production of Apples for profit. Let us now proceed to a diagnosis of

VARIETIES SUITABLE FOR TABLE OR COOKING.

Early.—Lady Sudeley; large, pale yellow, streaked red or crimson, handsome. August and September. A comparatively new Apple of great excellence, either for small or large culture.. Worcester Pearmain; medium, yellow almost completely covered with bright red, less so on the shaded side, handsome, free bearer. September and October. Wormsley Pippin; large, rich golden, or orange on the sun side, clear yellow on other parts, free bearer. September and October.

Midseason.—Cox's Pomona; large and medium, yellow, much streaked with bright crimson, beautiful, flesh tender, moderate bearer. October and November. Harvey Apple or Dr. Harvey; large, pale yellow, flesh tender, free bearer. October to December.

Blenheim Pippin; large, yellow, tinged red next sun, handsome, flesh tender, shy bearer on young trees. November and December. Baxter's Pearmain; large, pale green, tinged red, deeper on sun side, flesh firm, free bearer, even in adverse seasons. November to January. Cobham or Golden Ducat; large, clear yellow, a little streaked with red on sun side, not unlike Blenheim Pippin, flesh tender, early, and abundant bearer. November to January. Gravenstein; large or medium, waxen yellow, streaked crimson, handsome, flesh rather firm, moderate cropper. October to December. Lady Henniker; large, yellow flushed crimson, and streaked, handsome, flesh tender, free bearer. Lewis's Incomparable; large, red streaked crimson on sun side, yellow on shaded side, faintly streaked red, strewed with russety dots, very handsome, flesh firm. December to February. King of Tomkin's County; large, greenish yellow, streaked red, very handsome, flesh tender, free bearer. December to March. An American Apple, which in this country does not ripen, or rather hangs late on the trees, and keeps remarkably well until April or May. It may not suit all soils and situations; when grown against a wall with southern aspect magnificent. Royal Pearmain or Herefordshire Pearmain; large or medium, greenish yellow, red on sun side, with deep coloured streaks, becoming bright crimson when maturing, flesh rather firm, free bearer. November and December. Harvey's Wiltshire Defiance; large, sulphur yellow, deeper on sun side, very handsome, flesh rather firm, good bearer. October to December. Lemon Pippin; medium, yellow, flesh firm, good bearer. November to January. Reinette de Canada; large, greenish yellow, brown on sun side, flaked russet, flesh rather firm, good bearer. In good soils and warm situations this is a remarkably fine Apple. November to January. Washington; large, yellow, streaked red, very handsome, flesh tender. October to December. Although this is an American Apple it promises to be a good grower and cropper, especially so in good situations.

Late.—Dutch Mignonne; medium, greenish yellow covered with streaks of red and crimson, flesh firm, great bearer. December to April. Bess Pool; medium, yellow, washed and striped red on sun side, faintly streaked on shaded side, handsome, flesh firm, does not bear well on young trees, an uncertain bearer. November to March. Barnack Beauty; medium, greenish yellow, streaked red, handsome, flesh firm, free bearer. February to April. Balchin's Pearmain; medium, lemon, crimson on sun side, flesh firm. March to May. London Pippin; medium, pale yellow, brown or red on sun side, flesh firm, free bearer. November to April. Calville Malingre; large, slightly yellow on shaded side, deep red on side next sun, red streaked, very handsome and distinct, free bearer. January to April. I have not seen this otherwise than in a warm situation—*i.e.*, well sheltered and well drained soil, but it seems to have a good constitution. Northern Spy; large or medium, greenish yellow changing to rich yellow, crimson on sun side, streaked dark crimson, becoming brilliant as the fruit matures, very handsome, flesh tender, pleasingly aromatic. Does not bear well when young, evidently growing too freely, and is apt to become very much crowded in growth, therefore requires to have attention in keeping the heads open. Though an American Apple it thrives well in sheltered situations and properly drained soil. The fruit sent from the Canadas or northern seaboard States is usually conical-ovate in form, but in this country the fruit is less so, yet in no sense round, but ovate, less inclined to be conical than American grown fruit, and the flesh in English grown fruit is firmer. To my taste this is the finest of all Apples. December to April. Like Worcester Pearmain and Peasgood's Nonesuch, Northern Spy is covered with bloom like a Grape.

On the hypothesis that an Apple for market purposes should be large in size, high in colour, or otherwise taking in appearance, with a tender flesh (or if firm falling when cooked), so as to make it acceptable in a raw state, and of greatest usefulness for general consumption, that is the Apple for the million. If an Apple be sweet enough to render it palatable for eating it surpasses as a culinary one those that require a deep dig into the sugar basin. An Apple, therefore, that is good as a table and cooking variety is most economical, and it becomes a question whether the buyer shall invest in sour fruits and purchase sugar to make them palatable, or purchase fruits that are so rich in saccharine matter as to render it acceptable to all palates in a raw state, and requires little if any addition of sugar in a cooked state. We have, of course, to decide between importing Apples or importing sugar. Another feature of the Apples that are good for cooking and dessert is that they have generally a tender flesh, being at the most crisp, particularly as regards the American varieties—*viz*, Baldwin, Newtown Pippin, Northern Spy, and Golden Russet, which are the varieties I have seen most of and used to maintain a daily supply of fruit from November to May, and as such are suited to delicate stomachs. It is all very well to laud a Ribston Pippin or some other hard firm fleshed variety to the skies on account of their surpassing excellence

of flavour, but it is another thing when the eater is a victim to dyspepsia, who eating a hard Apple may suffer agonies. In more ways than one the grower has not been in "touch" with the consumer, therefore I will proceed to a further digest of the varieties of Apples for the special purpose of dessert and cooking respectively.—G. ABBEY.

(To be continued.)



EVENTS OF THE WEEK.—The horticultural meetings for the week are as follows:—British Fruit Growers' Association to-day (Thursday), at 5 P.M., in the Horticultural Club Room, Hotel Windsor; the Royal Horticultural Society's Fruit, Floral, and Orchid Committees meet at the Drill Hall, James Street, Westminster, at 12 noon on Tuesday, March 11th; the usual monthly meeting of the members of the Horticultural Club will also take place on Tuesday at 6 P.M., the subject for discussion being Plant Hybridism; the first spring Show of the season will be held at the Royal Aquarium, Westminster, on Wednesday, March 12th. Other Society meetings are the Royal Society, at 4.30 P.M., Thursday, March 6th; and the Linnean Society, at 8 P.M. on the same day. The Royal Botanic Society, at 3.45 P.M., on Saturday, March 8th; and the Society of Arts, at 8 P.M., on Wednesday, March 12th.

— THE WEATHER IN THE METROPOLITAN DISTRICT during the past week has been extremely wintery and of a more severe character than previously experienced throughout the season. On Saturday snow fell nearly all day, with the result that by night it was 4 to 6 inches deep. This was followed by frost and more snow on Sunday and Monday, with a keen north-easterly wind. Very low temperatures have been registered in some situations. On Monday the thermometer was down to 16° and Tuesday to 14°, while we have heard from one reliable observer, who states that his thermometer was down to 10° on Tuesday morning. In town a heavy yellow fog prevailed until midday, but in the suburbs the day was extremely bright and sunny. At Greenwich the minimum registered was 13°, or 23° below the average, and 4° lower than any March temperature recorded there since 1845. Similar observations were taken in other towns, the record at Dungeness being exactly the same as at Greenwich. Towards evening on the 4th the wind changed to a south-westerly direction, and there was a rapid rise in temperature. At 8 P.M. on Wednesday the temperature was 40°, or 26° above that observed at the same time on the preceding morning. Writing from Cardiff on the 3rd inst. Mr. Pettigrew says:—"We are having sharp frost; the thermometer registered 10° of frost this morning. It is dry and bitterly cold. It will do good in keeping the fruit buds back."

— THE WEATHER IN THE NORTH.—The days generally during the past week (24th February to 3rd March) have been clear and cold. The nights, with one exception, have been frosty, 8° being registered on two nights, and 13° (the lowest of the season) last night. A good deal of bitter east wind has prevailed. The barometer continues very high. The sowing of Beans is being carried on under conditions highly favourable for our heavy coarse land.—B. D., *S. Perthshire*.

— WE see it announced, but we have no official authority for stating it, that MR. JOHN WEATHERS of St. Albans has been appointed Assistant-Secretary of the Royal Horticultural Society.

— "TULIPIANA."—I should like much to know if the work "Tulipiana" was finished beyond the four coloured plates in the fraction of the work bound up in Sweet's volume. They are works of art, beautiful in their colouring and execution.—D.

— MANY will learn with much regret that MR. MAURICE YOUNG of Godalming died on the 24th ult., at the age of fifty-six years. He followed his father as nurseryman in the town named above, and carried on the business for a number of years. Mr. Young possessed a good knowledge of landscape gardening, and was respected by a large circle of friends. His death resulted from inflammation of the lungs following an attack of influenza.

— WE are informed by M. Lucien Linden that the meetings of L'ORCHIDÉENNE at Brussels will in future be held on the second Sunday and Monday of the month. They will be open to visitors on Sunday from half-past one to six o'clock, and on Monday from 9 A.M. to 12 P.M., and from half-past one to six o'clock. The morning meeting of Monday is specially reserved for members of L'Orchidéenne.

— BLENHEIM PIPPIN APPLE FOR PROFIT.—Mr. S. T. Wright, who is a stranger to the writer of the article to which he refers, and an extensive and successful cultivator of fruit, remarks—"I fully agree with the leader on page 145. I cannot understand any practical man recommending the planting of this Apple for profit. If I were asked to name varieties not to plant I should head the list with the Blenheim and place Peasgood's Nonesuch second."

— PYRUS JAPONICA VIRGINALIS.—I cannot too highly recommend the foregoing for flowering in a cold house at Christmas and onwards. I have a bush plant growing in a pot that is flowering with wonderful freedom for its size. It came into flower about Christmas, and it appears likely to remain in bloom for the next two months, as it appears to put forth fresh buds almost daily. The flowers are large and pure in colour. They are slow in expanding at this season of the year, and when developed last for a long time. I can heartily recommend it.—R. D.

— GARDENING APPOINTMENTS.—Mr. E. Binfield, who has been foreman at the Froyle Park Gardens for the past three years, has been appointed head gardener to J. Ashley Waller, Esq., Benham Court, Newbury, Berks. Mr. William Bowell, for upwards of twenty years in charge of the gardens at Stawell House, Richmond, has been appointed gardener to Robert Harris, Esq., Shiplake Court, Oxfordshire. Mr. John Shute, late foreman at Palmerstown, Straffan, Co. Kildare, has been appointed head gardener to Mrs. Daly, Hazlebrooke, Dublin. Mr. John Wright, foreman in the gardens of G. T. Clarke, Esq., Talygarn, South Wales, has been appointed head gardener to Allen Sarle, Esq., Green Hayes, Banstead, Surrey.

— EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.—This Society has recently changed its title, and for the future it will be known simply as the Ealing Horticultural Society. The exhibitors at its shows in the future will be residents within the parish of Ealing. The summer Exhibition will take place on July 9th, and the autumn Exhibition on November 5th, and during the end of July a children's flower show will take place. Mr. Richard Dean, who has held the office of Hon. Secretary for a period of fourteen years, has retired through pressure of other work, and is succeeded by Messrs. J. A. Dawes and Geo. Cannon as joint Secretaries. Mr. R. Dean will remain as a member of the Committee, and give his assistance to his successors.

— THE WEATHER IN YORKSHIRE.—Writing on February 28th, a correspondent observes:—"Yesterday about 4 inches of snow fell, and to-day we have another slight fall, but the sun and wind have dispersed much of it. The cold weather is very beneficial in retarding the fruit trees. Peaches and Apricots are crowded with fruit buds. Apples and Pears are also promising well, but Plums are likely to be very partial. Small fruits are very promising, and although we have passed through a very mild winter, it is by no means an early season."

— THE WEATHER.—On the 1st of March we registered 12° of frost. The day was bitterly cold with a keen north-easterly wind. Snow fell during the day to the depth of about 2 inches, barely enough to protect vegetation. The frost has been persistent and somewhat severe, as follows—2nd, 14°; 3rd, 17°; 4th, 20°. The ground was so hard that outdoor garden operations were practically at a standstill. On the 4th the wind veered to south-west, with a falling barometer and a slight rise in the temperature.—G. R. ALLIS, *Old Warden Park, Biggleswade.*

— MR. O. KING, Ray Park Cottage, Maidenhead, desires us to announce that the annual show of the MAIDENHEAD HORTICULTURAL SOCIETY will be held on Thursday, August 14th, 1890.

— AN appendix to the "KEW BULLETIN" FOR 1890 just issued consists of a list of seeds of hardy herbaceous plants, trees, and shrubs saved in the Royal Gardens, and available for exchange with other botanic gardens. Thirty-two pages of names of plants in double column are given, with the authorities and the native countries in most cases.

— NARCISSUS AJAX PALLIDUS PRÆCOX flowered with me on the 24th February. The next of the Daffodils to flower will be N. scoticus

or N. minor. I have not found the reputed early variety of N. pallidus præcox, named Asturicus, to be so early in flower as the type, although growing within 9 inches of each other. N. p-p. Blond Doré I only received last year, so that I did not expect to be able to compare it with the type this season, so far as regards early flowering. What is the general experience of your readers regarding this point? As regards refined beauty I think Asturicus superior to the type.

— PRIMULA CASHMERIANA has been in flower on a south border since the middle of December. From a group of some ten plants I have always had some in bloom. It is perfectly hardy here in all positions, and is very pleasing with its large head of deep violet flowers. The thick covering of golden farina on the stems and under side of the leaves adds greatly to the beauty of the plants. It is much finer than P. denticulata, which it greatly resembles, but which among other points of difference lacks the farina on the leaves.—S. ARNOTT, *Kirkcudbrightshire.*

— THE total RAINFALL AT CUCKFIELD, MID-SUSSEX, during February was 0.92 inch, being 1.40 under the average. The heaviest fall was 0.44 inch on the 15th, rain falling on seven days. Highest shade temperature was 48° on the 13th; lowest 26° on 28th. Mean maximum shade temperature 41.2°; mean minimum 32.0°; mean temperature 36.6°. According to old partial-shade readings it is 2° below the average. Fruit buds in a forward state; Crocuses in full bloom. Land in fine condition for early crops.—R. INGLIS.

— THE annual report of the OXFORD CARNATION AND PICOTEE UNION has just been issued, and the published list of subscribers shows that there were 380 members to the end of 1889, and of these 104 became members during the past year. The annual subscriptions amount to £155 9s. The report contains a full statement of the official awards and proceedings at the exhibition held in Mr. Dodwell's garden, Stanley Road, Oxford, August 1st, 1889, giving a full list of all the winning flowers and their exhibitors. Not the least interesting item of the report is a retrospect of 1889 by Mr. Dodwell, in which many of the grand newer yellow ground, self, and Fancy varieties are alluded to, and these by "leaps and bounds" are fast rising in public favour, for they are very beautiful and generally possessing good constitutions, and the Oxford Exhibition is the place to see them in their beauty and extent of varieties.—D. S. H.

— WIREWORMS AND OIL CAKE.—I can find no good trap for catching the wireworm, and have therefore given some time to the keeping of this pest. I find that they will leave Potatoes and other vegetables, but the safest trap is oilcake. I therefore put pieces of cake in an old hothouse which was infested with every kind of pest, and it is no exaggeration to say that I caught thousands of worms. I did not write to the Journal, thinking, perhaps, that it might have been found out by someone else. Would you inform me whether this is the case or not? It is quite new to many large Kentish growers, who think it a splendid idea.—A. WELLS INGRAM. [The idea is not new, but the experience communicated is, all the same, worth recording. It has long been taught in books that wireworms eat oilcake till they burst. Some that we have tried did not, and our correspondent makes no mention of the phenomenon.]

— SCENTED FERNS.—The article quoted from the London daily papers was very interesting to read, but whether the *Drynaria Willdenovi* is hay-scented or not I am unable to say, never having cultivated it. I have, however, cultivated *D. coronata*, *D. quercifolia*, and *D. diversifolia*, but never detected any smell of hay about them. These three are well worth growing for ornament and variety, especially for large baskets or trunks of trees. There is, however, a beautiful little Fern that is distinctly hay-scented, *Cheilanthes odora*, especially in the partially withered fronds. A plant was brought from the south of Europe to me some few years ago. It lived for a few years, but for want of a suitable house to cultivate it in it gradually died. It would not do in an intermediate stove or in any airy greenhouse, neither is it sufficiently hardy to be placed outdoors where there is much frost, but I should say that good plants may be found in a house similar to one at Kew, where cool half-hardy Ferns are grown in a still and quiet atmosphere, and not having much fire heat. Another plant, although not a Fern, when cut and partly withered, has the scent of new-mown hay. It is the *Asperula odorata*, Sweet Woodruff, a common plant in many gardens, and has pretty white flowers in May and June. It grows very well under trees or in rockeries, and once planted takes care of itself.—A. HARDING.

— THE GARDENERS' ORPHAN FUND. — The usual monthly meeting of the Committee took place at the "Caledonian Hotel," Adelphi, on Friday, the 28th inst., Mr. George Deal presiding, there being a good attendance of members. The minutes of the last meeting having been read, a letter from Mrs. Wildsmith of Heckfield, thanking the Committee for their vote of condolence with her on the death of her husband, was also read. Among the special donations handed in was one for £15 from Mr. William Robinson, and from Mr. J. Hughes, the active local Secretary at Birmingham, came the sum of £14 11d., and Mr. J. Hussey, Haines Hill, Twyford, local Secretary for that district, sent £2 16s. The matter of the annual Floral Fête was then considered, and a letter was read from Mr. J. Bourne announcing the willingness of the Duke of Bedford that the Floral Hall be again used for the purpose. It was unanimously resolved that a meeting of standholders and growers be called at the "Hummums Hotel," Covent Garden Market, on Friday, the 15th inst., at 9 P.M., to solicit their co-operation, and appoint a Committee from their body to work in conjunction with the Committee of the Fund. It was also resolved that, agreeable to the convenience of the President and the engagement of the Hall for the purpose, the annual meeting of subscribers, the election of children to the Fund, and the annual dinner take place at the Cannon Street Hotel on Friday, July 18th. The Hon Secretary having brought up a statement as to the probable income of the Fund for the current year, and the sum available for allowances to children after funding the donations, &c., as prescribed by the rules, it was unanimously resolved that ten children be placed upon the Fund at the annual election in July next. The usual vote of thanks to the Chairman closed the proceedings.

— MANCHESTER FIELD NATURALISTS AND ARCHÆOLOGISTS' SOCIETY. — A Committee of the members of the above Society has been appointed for the purpose of promoting the planting of trees and shrubs in Manchester and its immediate suburbs, especially in available "open spaces." The idea is approved by the Corporation, and we understand that in addition to the good work already accomplished under their influence in the public parks, &c., evergreen shrubs, planted in boxes or tubs, will before long be placed in some of the principal squares. Every one who cares for the improvement of the town by means of tree planting will gladly support the Corporation and the Field Naturalists' Committee above mentioned. The opinions of experienced practical men are earnestly desired; will you therefore be so kind as to co-operate in regard to the excellent design in hand by supplying information? Information is particularly desired in reference to the different districts of the town. What is best for the north side? what for the south? and so forth. When all possible information has been obtained it is intended to publish it in pamphlet form as a general guide for tree planting and culture, so that every encouragement may be given to those interested in the improvement of the appearance of our city. A form is sent with the following questions:—"What trees would you recommend for open spaces?" "What kind of shrubs, especially such as would succeed in tubs or boxes?" "What suggestions can you offer as to soil, treatment, and upon any important point relating to tree culture in towns?" Answers to these queries should be addressed to Mr. C. J. Oglesby, 16, Kennedy Street, Albert Square, Manchester.

— PLANTING AND PRUNING FRUIT TREES. — I have been planting some fruit trees to-day which have been laid-in during the winter. Of course it is very late for such operations now, but we often have to do things from force of circumstances. If any amateur has neglected to plant his trees I advise him to set about it at once, for I find root action has commenced freely, and the white feeding fibres are bristling from the thick roots. In such cases as this the trees should be moved as speedily as possible, for half an hour will parch the tender roots. If they do get dry, take care to damp them before putting them in the soil. Plant firmly, and do not forget to mulch the surface with long manure, for this will be very beneficial to the roots. Do not be afraid of cutting-in the head or branches of the tree, for the roots have been curtailed in digging the tree up and in its removal also. An argument was raised early last year by some of our authorities on this subject, some advising to prune back severely, while others said, Leave the head intact. Now I am an advocate of the old adage, "The proof of the pudding is in the eating," so, after reading the various opinions on the subject, I formed my own, but determined to test the matter in a practical way. I had planted several young trees, so I went over half of them and pruned them pretty hard, while the others I left to take care of themselves. At the present time I do not require any further proof as to the best method. To confess the truth, I have just lost a year with the trees

I left unpruned. There is nothing like learning by experience. I have now pruned the whole of them. If any amateur would like to dive into this subject, he cannot do better than study "Profitable Fruit Growing." I do not care how wise he may be on the subject, he will be wiser still after its perusal.—EXCELSIOR.

— THE WEATHER IN FEBRUARY. — The past month here has been noted for the small amount of rain which fell compared with that of February, 1889. The total amount for last month being 0.71 inch, being 1.35 inch less than fell February, 1889. Rain fell upon five days, the maximum in twenty-four hours being 0.33 inch on the 15th, minimum being 0.03 inch on the evening of the 5th. We registered some frosts nearly every morning, but nothing very severe except on the 28th, when 10° were registered.—E. WALLIS, *Hamels Park Garden, Buntingford.*

— THE usual fortnightly meeting of the READING GARDENERS' IMPROVEMENT ASSOCIATION was held on Monday evening last, a large number of members being present. R. D. Catchpool, Esq., presided, and Mr. J. P. Jones gave a lecture on "The Use of Flowers." He said gardeners should be the most punctual, patient, persevering, and happy men. He described the use of flowers in various ways, showed illustrations of table decorations as used recently in Japan, and referred to the culture of flowers in the south of France for perfumes. The fertilising of flowers by the different insects was also dwelt upon, as well as its importance in continuing the various races of flowers. A vote of thanks was unanimously accorded.

— TOO SUCCESSFUL EXHIBITORS. — No doubt the above subject is one that all who have to take part in the management of cottagers' shows have to contend with, and to explain reasons to disappointed exhibitors and their friends and sympathisers. My experience of cottagers' shows and the inspection of cottagers' gardens is that the most industrious and painstaking men get the most prizes, and so they ought, for to grow a good collection of useful vegetables of good size and quality in the spare time a man may have after his regular day's work is done, or before it begins in the morning, means a good deal of hard work, and many hours profitably spent. Of course there are in most communities a few schemers who try to get at the same result in a different way, but as a rule they are soon found out. We have found it necessary in our case in some of the competitions to make classes for those engaged in garden work, as well as classes for ordinary cottagers, farm labourers, &c., as it is found that men employed in gardens show greater aptitude than ordinary labourers. I quite agree with your correspondent Mr. Raillem, page 119, that at the time the prizes are distributed one of the judges, or someone competent to speak, should give a few words of encouragement to the unsuccessful exhibitors, telling the means to use to win next year, or in some way fairly (to use a racing term) to handicap the winners; but with fair play and no favour the best man should always win, and anything that interferes with that principle would not be to the advantage of any society or community. With regard to improved Blackberries, in "Notes and Gleanings," recently, I am made to say that a Bramble in 1889 made a shoot 3 feet long; it should have been 30 feet long.—R. MAHER, *Yattendon Court.*

— NICOTIANA AFFINIS IN THE CONSERVATORY. — I cannot say whether my experience with this is peculiar, but certainly I am in a position to very warmly commend it, as can be gathered from the following details. A London firm sent me a few seedlings, with other plants, about this time last year, telling me they thought the strain more dwarf and sweet-scented, and almost perpetual flowering, asking me to give them a trial. A 12-inch seed-pan was the next to hand in the potting shed, and into it they went. The pan was shallow, with comparatively much drainage and little soil, and possibly intended for something else. I determined if the three plants did well I would feed them with liquid manure. This may possibly account for their coming into bloom in about a month, and flowering continuously since up to the present with this treatment. The first blooming was over in the autumn, but the old plants seemed healthy. I removed two and left the centre one, cutting it down to within 3 inches of the soil, as I saw some eyes further down. I commenced gradually feeding with a concentrated liquid manure of soapsuds, fowl manure, soot, &c., mixed according to the stage of growth and time of the season, with warm water from the conservatory cistern as growth and flowering progressed. Almost immediately growth, shoots, and flowers showed, and during the whole winter it was delightful to sniff the delicious scent every evening I strolled into my conservatory. Should you think it possible the strain is better than that usually grown, I can send you a flowering spray to

see. My plant seems still to have a floral career of months before it.—
W. J. MURPHY, *Clonmel*.

— PRIMULA VERTICILLATA.—This is a lovely member of a large family, and well worthy of being more extensively cultivated than it is at present. Treated as a hardy species its true character is not fully developed, for, although interesting amongst its congeners in the rockery, stormy weather spoils many of the more tender beauties which help to make it so pleasing and attractive as a pot plant. The slender, graceful spike coated over like the "Dusty Miller," rising out of its bed of leaves, each one covered in the same manner, always attracts attention, and as whorl succeeds whorl of pale yellow flowers, the effect of a well bloomed plant is charming. Seed sown now and put in a warm place until up, then grown in a cool, airy position free from chilly currents of air, will make most useful sized plants by this time next year. They prefer a light porous soil to grow in, and ought never to be watered over the foliage, as the water lodges in the axil of the leaves and causes the plants to damp off. Damp appears to be the only enemy to be guarded against, and if this can be prevented and a suitable position accorded them they are remarkably easy plants to cultivate. After the flowering period they ought to be gradually hardened off, and finally planted outside, to be lifted again in the autumn before being damaged by frost, and wintered on vacant Strawberry shelves or other suitable place until bloom appears, when they might be removed to the conservatory or wherever required. They can be grown for many years in this way, but for general purposes it is not advisable to grow them for more than about three years, as young plants are far more serviceable than old ones; the latter can be planted in an elevated position in the rockery or alpine garden, where, as previously stated, they form interesting objects.—M. D.

— A COMMITTEE has been formed in Paris for the purpose of making arrangements for the erection of a statue of the late M. BOUSSINGAULT. His work marked an era in the history of the agricultural sciences, and we have no doubt there will be a prompt and liberal response to the Committee's appeal for subscriptions. M. Pasteur is the Honorary President of the Committee. The acting President is M. Schloesing, and the following are the Vice-Presidents:—MM. Berthelot, Duchartre, Laussedat, Peligot, Risler, and Tisserand. MM. Müntz and Sagnier are the Secretaries, and M. Liébaud is Treasurer.

— THE Calcutta Herbarium contains a rich collection of MALAYAN PLANTS, and Dr. King, the Superintendent of the Calcutta Royal Botanic Garden, proposes to publish from time to time a systematic account of as many of them as are indigenous to British provinces, or to provinces under British influence. In addition to the States on the mainland of the Malayan peninsula these provinces include the islands of Singapore and Penang, and the Nicobar and Andaman groups. The classification which Dr. King intends to follow is that of the late Mr. Bentham and Sir Joseph Hooker.

— FOR the purpose of growing plants under more NATURAL CONDITIONS than those usually afforded by the soil and surroundings of ordinary botanic gardens, M. G. Bonnier, the Director of the Botanic Garden in Paris, has obtained from the Director for Higher Education in Paris the grant of a piece of land in the Forest of Fontainebleau, as an annexe for experimental culture. It has been placed under the special charge of M. Cl. Duval.—(*Nature*.)

METHODS OF JUDGING.

It seems my suggestion at page 118 does not meet with the approbation of Mr. G. A. Bishop (page 176). Perhaps I do not understand him in the points he puts forward, while I am also of opinion he does not understand me. I certainly do not agree that he has solved the problem to the satisfaction of everyone; on the contrary, I suspect his method would increase the difficulty. I have repeatedly seen the verdict of judges questioned and criticised. I have accompanied judges often while adjudicating at horticultural shows, as well as having acted as judge, and not seldom we were placed in a difficulty how to decide, and more than once, so near were the competitors, that I have witnessed the judges toss a penny to decide which was to get the first honours. Now, in all fairness, would it not be better to divide the prize money nearly equally in such cases? Personally, when I had a difficulty to deal with I endeavoured to discover coarseness, and anything possessing it was laid aside; still I have often witnessed some prominent defect, but the other properties far outweighed that, and entitled it to the first prize, taking everything into consideration. Whatever may be the opinion of others, mine is that the total amount of prize money for three prizes should be divided by the judges according to the merit of the

articles competing. To withhold all first prizes above a certain number would be a death stroke to the advance of horticulture as well as to exhibitions. Does not Mr. Bishop's last sentence stultify his first, and suggest that his proposed system is faulty? because "if the losing of first prizes is not sufficient to move the hinder ones they are not worthy of taking honours others are entitled to." Does not that quotation support my argument?—WM. THOMSON, *Blantyre*.



DENDROBIUM MACFARLANEI.

IN your notes accompanying the faithful representation of the above Dendrobe in your last issue, mention is made of the plant that flowered in Chalfont Park a few years since, some particulars of which may be interesting. The plant was brought over and given to me, with others, by a friend then connected with a steamship company trading between this country and Queensland, and the Orchids he collected from one of the islands lying in their route off the Australian coast. He had no knowledge of plants himself, and brought them as curiosities. They had only been tied up in canvas. He arrived in London November 4th, 1884, and the bundle of Orchids reached me about three weeks later.

The plants were cleaned, some potted in crocks, and some suspended in an intermediate house, and thence transferred to the stove. About twelve months after, early in December, 1885 (not autumn, 1886, as stated) the subject of this notice produced an erect raceme of five flowers, the latter keeping fresh and good over two months. Unfortunately it was not thoroughly established, and did not long survive the flowering. My friend ceased travelling that route, but obtained for me from an acquaintance there another importation; but although I forwarded a dry pseudo-bulb of *D. Macfarlanei* as a specimen of what I wished to obtain, I only received one plant anything like in growth, and possibly this may prove not to be that variety. It is well established, and from its appearance I had hoped it would have flowered this spring. Of this last importation some have proved botanical curiosities only, but I have several well-established plants of a rather strong growing Dendrobe that I have not yet been successful in flowering, and another with a short pendulous pseudo-bulb, showing flowers which will open shortly.—
C. HERRIN, *Dropmore Gardens*.

DENDROBIUM NOBILE AND CALANTHES.

THE enclosed is a portion of a pseudo-bulb cut from a plant in an 8-inch pot, and is a fair sample of the others as regards the number of flowers. Fourteen dozen flowers were cut from a plant in a 9-inch pot on February 27th, and by taking a few plants into the stove every fortnight the supply lasts for two months. *Calanthe Veitchi* and *vestita* are successfully grown, the former having pseudo-bulbs over 1 foot high. They are most useful for house and table decoration. Perhaps a few particulars respecting my system of culture for both the *Dendrobium* and *Calanthe* might be useful to the young readers of your widely read Journal.—
J. C. H.

[The pseudo-bulb sent was a strong one, with sixteen fine flowers, and your system of culture would be gladly recorded.]

CYPRIPEDIUM ELLIOTTIANUM.

AT the end of October, 1888, Mr. Godseff sent me a flower of a new *Cypridium* from the Philippine Islands, which it was desired should bear the above name. Unfortunately the flower was damaged in transit, and its true character could not be determined; however, a note written respecting it appeared in the *Journal of Horticulture* on November 1st, and this was, I believe, the first published reference to one of the most handsome *Cypridium*s yet introduced. Messrs. Sander & Co., St. Albans, were the fortunate possessors of the plant, and through them it has been brought into prominent notice during the past year.

C. Elliottianum partakes of the character of *C. Rothschildianum*, and some have gone so far as to consider them identical, but the decision of the Orchid Committee of the Royal Horticultural Society at a recent meeting gave an official endorsement to the opinion of Reichenbach and other authorities as to their distinctness. From Mr. H. M. Pollett's plant exhibited at the meeting named—*i.e.*, on February 11th, when a first-class certificate was unanimously awarded for it, the woodcut (fig. 28) has been prepared, and shows both the floral form and the bold markings clearly and accurately.

The dorsal sepal is broad, oval, white, with rich maroon stripes extending from the base to the apex, and their regularity in breadth and distance apart gives a striking character to the flower, the lower

Veitch & Sons' "Manual of Orchidaceous Plants," but that appears to be a quoted description contributed by Mr. James O'Brien to the *Gardeners' Chronicle*. I have seen some others similar to Mr.



FIG. 28.—CYPRIPEDIUM ELLIOTTIANUM.

sepal being similarly marked but necessarily less noticeable, as it is partly hidden by the lip. The petals in the specimen exhibited were faintly straw tinted, but they are described as white in Messrs.

Pollett's specimen, but the tinting may possibly be due to age, a change of this kind being common in Orchid flowers. The ground colour is of little moment, however, for the chief beauty of the

petals rests in the deep crimson maroon spots so freely yet regularly scattered throughout the greater part of their length, the basal half in particular. The margin also bears a number of dark rather long hairs, and the petals taper gradually from the base to the apex, varying in length from 4 to 6 inches. In the first flower I saw they were only $3\frac{1}{2}$ inches long. The lip has a remarkable resemblance to *C. Stonei*, the rosy veining and tinting being perhaps a little more strongly marked.

The plant is of strong growth, and evidently free flowering, as shown in the illustration, but some of the collected specimens had five flowers on a stem. The leaves are long, broad, and bright green, the whole habit of the plant indicating a vigorous constitution. It will probably be easy of increase and culture, and will be prized wherever Cypripediums are admired. The name was bestowed in honour of Mr. Elliott of New York.—LEWIS CASTLE.

VALUE OF CALANTHES.

THERE are more brilliant and innumerable choicer Orchids in cultivation, but in point of general utility and effect it may fairly be assumed that *Calanthes* stand pre-eminent. This may appear a somewhat bold assertion, but I think I can prove the truth of my words. In the first place they are at their best any time during December, January, and February (I am alluding solely to *C. Veitchi* and *C. vestita*), they can be utilised in many positions with excellent effect, and they remain fresh and bright for several weeks, the period naturally varying according to circumstances; added to this they are not expensive, being also easily increased, and not difficult to cultivate. A back shelf or a suspended shelf, not far from the glass in each case, in an ordinary plant stove or forcing house suits them admirably, and with fairly skilful treatment the pots become crowded with roots, stout growths, gradually developing into fine flowering pseudo-bulbs. *Calanthe* foliage is coarse and unattractive, but fortunately this ripens and falls, or is removed some time before the flower spikes are far advanced in growth, this admitting of their being most effectively grouped with various other plants. We annually flower upwards of 200 bulbs, and the greater portion of these are interspersed among Ferns, principally *Adiantums*, as they come into bloom. As a rule they are at their best with us somewhat late in the season, or at the end of January, when the photograph taken of some of them and sent with this to the Editor of the *Journal of Horticulture* was taken. The temperature of this house or fernery as a rule ranges from 55° by night to 65° in the daytime, and this suits *Calanthes* when in flower better than either higher temperatures accompanied with more moisture or an ordinary greenhouse heat, spotting and damping quickly resulting when the *Calanthes* are submitted to either extreme. *Calanthes* are especially valuable for house or room decoration, and if not damaged in transit do not suffer much in comparatively warm dry rooms for a few days. The *C. vestita* varieties are particularly effective with Maidenhair Ferns on a mantel shelf, and associated with *C. Veitchi* in stands and groups generally give an excellent finish to these. Undoubtedly the pseudo-bulbs of the "dark" or most richly coloured forms of *C. Veitchi* are pecuniarily of more value than *C. vestita*, but I attach the most value to the latter.

Effective as are the spikes of *Calanthes* in groups, they are even more serviceable in a cut state. A few hours out of water on the cloth of a dining table does not injure them. I have frequently used them in that way, and they are singularly well adapted for vases generally. The less, however, they are mixed with other flowers the better, the spikes of *C. Veitchi* meriting a vase with a base of greenery to themselves. Those who may have their doubts about the effective appearance this species alone presents in a cut state ought to have seen the dining table at Canford Manor as prepared by Mr. T. H. Crasp, Lord Wimborne's gardener, on the first night of the visit of the Prince of Wales during the third week in January last. No less than 150 spikes of *Calanthe Veitchi* were used, these being distributed over about fourteen rather large and flat silver vases. Eight of the largest vases containing the finest spikes were arranged through the centre of the long dining table, twelve smaller ones with shorter spikes alternating with the dishes of dessert. In each case a rather heavy mass of fine fronds of Maidenhair Fern occupied the base of the vase, the *Calanthes* springing from these in a bold and free style. Two Kentias and about fifty bunches of Marie Louise Violets, the latter in small fish globes, completed this most effective table. Fairly compact spikes of *C. Veitchi* are suitable for ladies' wear, but the most serviceable and attractive sprays are best made by wiring each single flower, a mass of these 3 inches to 4 inches wide and about 8 inches long, backed by fronds of *Adiantum*, being difficult to surpass. The ladies of the Royal party at Canford Manor were furnished with sprays thus formed on the night the *Calanthes* were used for table decoration. Spikes of *vestita* are very effective in hand bouquets and

wreaths, and in sprays backed by coloured or prettily veined Ivy leaves are even more attractive.—W. IGGULDEN.

[The photograph shows an excellent group of *Calanthes* and Ferns, but the details are too numerous and the size too small to admit a satisfactory reproduction as an engraving.]

ORCHIDS AT THEDDEN GRANGE, ALTON.

As I was privileged a few days ago to see the Orchids at Thedden Grange, I thought a few notes may prove interesting to the readers of the Journal. Till within the last two or three years Orchids had not been so extensively grown here as they are now. J. G. Wood, Esq., the owner of this beautiful garden, takes a lively interest in these plants, to which special attention has been directed by the gardener, Mr. Company, and judging from the general appearance and health of the plants his attention has not been in vain. The old *Cœlogyne cristata* seems to be specially well grown; thirteen plants were in flower, one in a 12-inch pot, with sixty-two spikes and over 300 flowers. Nine of the plants were doing duty in the mansion, and had been there for a month, and at the time of my visit it was a sight not to be easily forgotten. Among those in flower were the following:—

Arachnanthe Clarki, recently figured in "Bot. Mag.," 7077; *Dendrobium Ainsworthi*, *D. aureum*, *D. Brymerianum*, *D. crassinode*, *D. densiflorum*, *D. Farmeri*, *D. fimbriatum oculatum*, *D. Devonianum*, *D. Pierardi*, *D. Pierardi latifolium*, *D. primulinum giganteum*, *D. nobile*, one grand plant in a basket with 103 flowers; *D. sulcatum*, with eight racemes of eighty-seven blooms; *D. Wardianum*, a fine variety, with pseudo-bulbs 38 inches long, splendidly flowered; *Odontoglossum Alexandræ*, *O. cordatum*, *O. Cervantesi*, *O. Andersonianum*, *O. Harryanum*, *O. maculatum*, *O. Pescatorei*, *O. Rossi majus*, thirteen plants; *O. Rossi majus roseum*, *O. Roezli*, *Cattleya Walkeriana*, *C. Trianae*, *Sophronitis grandiflora*, *Oncidium sphacelatum majus*, 266 flowers; *O. carthaginense*, *Lælia anceps*, a well-flowered specimen of a good variety; *Masdevallia Lindenii*. Among those showing flower were *D. Devonianum*, *D. densiflorum*, *D. transparens*, *D. thyrsoflorum*, *D. suavissimum*, *D. Deari*, *D. draconis*, &c. Other plants are equally well grown at Thedden.—H. COSTER, *Froyle Park Gardens*.

BRUSSELS SPROUT.

I FULLY endorse what is stated on page 169 by Mr. Thomas respecting this choice vegetable. How many varieties—or rather names of it—are now to be found in the various catalogues with eloquent descriptions as to merits, yet when grown, owing to their monstrosity, are fit only for cattle? I have grown some such where there was 12 or 18 inches clear stem from the ground to the first formation of sprouts, the few which then formed being large and coarse. Where a good strain is grown and due attention paid to cultivation, no vegetable is more profitable in winter, either for a gentleman's table or market purposes. This I have proved for several years with the strain I grow. I send you a sample (which is only moderate) as showing the character of the variety that has never failed to give satisfaction. I always sow in the open ground about March, planting when about three rough leaves are formed into their permanent quarters in rows 2 feet apart.—T. B., *Leeds*.

[The sample sent is excellent, the side growths being medium size, firm, and crowded on a length of 18 inches of stem. It closely resembles specimens that were sent to one of the meetings of the Fruit and Vegetable Committee of the Royal Horticultural Society by Mr. A. Harding of Orton Longueville, and for which we think he was awarded a cultural commendation.]

GARDENERS OUT OF SITUATIONS.

I SINCERELY thank all gardeners who have given their views in the *Journal of Horticulture* respecting gardeners out of situation. I should be pleased to join any properly formed society that would assist in this matter, but doubt if such a society as is said to exist at Belfast could be of much help. The question is, Would employers apply to such a society for a gardener? I fully agree with "B." that advertising is one of the best modes of getting a situation; that is to say, when you have not a friend to push you in. Could not something be done by a self help society to make arrangements with some of the leading horticultural papers, and pay so much a year? then when any deserving member who has been in a place for two years and leaves with a good character, get permission to advertise two or three times in the usual way, and save him paying what is charged in the ordinary way? Perhaps some of your readers may be able to say what such a society should be, and how to proceed better than I can.—ANGUS MCKINNON, *Machen House, Newport, Mon.*

[We hear that a project of the nature suggested will shortly be considered by a responsible body with the object of determining its probable usefulness and practical working. If any of our readers have any definite propositions to submit they shall be placed in the hands of a Committee that will have the subject under consideration. Vague

generalities will not suffice, and it is highly desirable that the methods proposed be such as will merit the good-will and confidence of the affluent who require the services of gardeners of proved respectability and competency. We think it advisable not to insert any more letters on this subject at present. Any that reach us on or before next Monday morning will be placed in the hands of men in sympathy with the object in view, and who are at the same time not without experience in organisation].

YOUR correspondent "R. M." says, "I hope that the day is not far distant when a system of national insurance for workers will be inaugurated on the same principle as that which has recently become law in the German Empire." I have studied this problem of self-help and dependence for some years, as practised by our large friendly societies in this country, therefore I was much interested in this colossal German scheme, but after reading and carefully studying its lines, honestly own that to my limited vision, when compared with our own voluntary societies, its so-called great advantage vanishes.—A. C., A.O.F.



MODERN CHRYSANTHEMUM CULTURE.

I MAY be considered a very feeble defender of the Chrysanthemum, not being a very important grower, yet I rank amongst the oldest, having taken "the fever" in a mild form when living at Calderstone in the days that Mr. Broome came from the Temple Gardens to St. George's Hall, Liverpool, to show his trained plants and teach their culture. Unfortunately most gardeners at the present time are carrying the "last straw" in connection with labour, consequently have none to waste in cultivating that which is not really required; and in common with many other gardeners I have not yet met an employer who looked upon the Chrysanthemum with any special degree of appreciation, therefore have not had the inducement to sacrifice the more important occupants of the gardens for the sake of the Chrysanthemum. Neither have I seen traces of others doing so, but have seen several instances quite the reverse, as may be found at Impney, Heckfield, Parkfield, Trentham, and many other places famous not only for the Chrysanthemum, but where everything else were correspondingly well done. The above may partly relieve Mr. Thomson of his anxiety in this respect.

I may now confirm his remarks respecting the cutting down system, which will doubtless become more general when so successfully practised in gardens such as Trentham and Drumlanrig. At the former place last autumn I was much impressed with the beauty and usefulness of many sorts grown in this way. In my opinion it is yet much the best way to propagate the tops of the taller varieties just as they begin to form crown buds where dwarf decorative plants are required with large blooms, as unfortunately it is only the moderately dwarf sorts that flourish on the cut down system, and I really fail to see any objection to a few dozen twelve-footers in the Peach house of every garden, as decidedly the most beautiful blooms are produced from these in such varieties as Belle Paule and Madame C. Audiguier. Where these are objected to a capital selection not exceeding 3 feet high can be had with Avalanche, Stanstead White, this latter we had 14 inches in diameter and kept in prime condition two months last year. For colour Edwin Molyneux, M. Freeman may be chosen with Val d'Andorre, L'Adorable, Mrs. Falconer Jameson, Madame John Laing and Sarah Owen. For incurved flower all the Teck family are the best—Lord Eversley a beautiful long-keeping white; Norman Davis, yellow; Princess Teck, blush; Charles Gibson, bronze; and Hero of Stoke Newington, rosy blush. Some of the Anemones are also dwarf, producing handsome useful blooms in almost every shade of colour.—J. H. GOODACRE.

THREE GOOD LATE-FLOWERING VARIETIES.

I HAVE had plants of most of the generally recognised late flowering varieties this season, many of them producing good blooms, but none amongst them is so conspicuously good and so effective as the three following, all of which are comparatively new and not generally known, nor are they included in catalogue lists of late-flowering varieties.

Putney George.—Judging by its character with me this season, this is a long way ahead of all other dark coloured varieties for flowering in January. The habit of the plant is very robust, with ample leafage, scarcely at all liable to mildew, and the buds open freely, however late. It also lasts well for a long time, and does not when old take on a dull dead tint as do King of Crimson, Cullingfordi, Julie Lagravère, and some other varieties. Its colour—brilliant crimson with gold tips to the florets, and bronze striped back—is wonderfully effective at Christmas time, and in the market finds ready and eager purchasers.

Mrs. T. H. Spaulding.—This is an American variety of 1888, producing large blooms, pure white, excepting only for a tinge of lemon colour at the base of the florets. Earlier in the season the florets incurve somewhat after the manner of Pelican, but late blooms pro-

duced now reflex, and the broad ribbon-like florets are flattened out, adding materially to its effectiveness when cut for making up into sprays or wreaths. Of a similar character to this, but not quite so pure in colour or good in form, is Lady Lawrence, syn. Mrs. Beale.

Mrs. Dunnett.—The last of my trio is Mrs. Dunnett, a variety introduced by Messrs. Carter & Co. two seasons ago. It is a large cup shaped flower with long quilled petals; white, delicately flushed and shaded with soft rose pink—a pleasing combination of colours. The plant is only a moderate grower, with rather small foliage, which is bright, smooth, and hard, lasting well on the plant and little subject to mildew.

I intend during the next season to grow a number of plants of each of the varieties named specially for flowering at Christmas and in the following weeks, and I can confidently recommend others to do the same who wish to have good blooms of effective varieties.—W. K. W.

CHRYSANTHEMUM MR. W. W. COLES.

THE engraving on page 111 of the Journal of this new Japanese shows to the best advantage a grand variety. From what I know it is an excellent "keeper," which is a decided gain. A bloom grown by Mr. T. B. Morton, Darlington, was shown by him at the Centenary Exhibition in Edinburgh, where it stood three days, and afterwards was good enough to take premier honours as the best Japanese bloom in the show at Pontefract. I understand that the stock is very limited at present, which is to be regretted. Those who are fortunate enough to obtain it I would advise to grow it well, and I think they will then have reason to be thankful.—E. MOLYNEUX.

OPEN AIR CHRYSANTHEMUMS.

SELDOM have Chrysanthemums done so well in the open air as during the past season. The plants during the summer grew strongly yet sturdily, and the well-matured branches flowered exceptionally well. Added to this the weather in November was most favourable to the opening and durability of the flowers, and in some instances quite a gorgeous display was the result. Not only were the old and well-tried favourites beautiful, but other old and newer varieties not often seen good in the open air were both serviceable and showy. As a rule the preference ought to be given to the early, or what are known as summer flowering varieties, and those among the earliest to flower of the sections most generally grown in pots. Not unfrequently old plants are depended upon either from choice or indifference, but, as a rule, early raised young plants give the best results. A mass of shoots springing up from a strong old stool only serve to weaken and spoil each other, a few poor flowers only being borne on the top of each; whereas if young plants are raised, these being early topped once or twice, a few strong branches are formed on each, these in their turn naturally producing side flowering shoots nearly throughout their entire length. There is no necessity to propagate at this early date, February or even early in March being soon enough to insert the cuttings. What has to be studied now is the source from whence suitable cuttings can be had. If there are no plants of each variety kept in pots and the old stools in the open, the chances are either no cuttings will be preserved from slugs, or else that the points of the young suckers will be crippled by frosts, and fail to strike in consequence. It is therefore necessary to either protect the old stools with a heap of ashes, leaf soil, or cocoa-nut fibre refuse, or else to lift some of each variety and store these in boxes or pots in a cold frame or pit.

Among the earliest to flower, the season commencing in July, are the yellow and white forms of the very dwarf La Petite Marie, Mrs. Cullingford, Précocité, St. Mary, Frédérick Marronet, Fiberta, Hermine, Madame Piccol, Lyon, Mr. W. Piercy, and Alice Butcher. Those which flower late in September, and frequently till cut down by frosts, are Catherine Wermig, Madame Desgrange, Alexandre Dufour, La Vierge, Sœur Melanie, and L'Île des Plaisirs, all being of good sturdy free-flowering habit. There are several excellent Japanese and incurved varieties that follow closely, among these being Lady Selborne, James Salter, Lord Beaconsfield, Elaine, Elsie, Margot, W. Holmes, L'Africaine, and Bertier Rendatler, all Japanese; and of incurved, Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny, Beverley, Mr. Bunn, Prince of Wales, Lord Derby, Prince Alfred, and Lord Wolseley. The foregoing succeed well in most seasons, and not unfrequently many of the somewhat later flowering varieties in each section do fairly well, especially if given the benefit of a sheltered position. On the whole the Pompons are the most reliable for open air culture, nearly all of these flowering most abundantly, the individual blooms being more perfect than is usually the case with either of the other sections. Such good sorts as Bob, White, Gold, and Lilac Cedo Nulli, Golden Circle, Rose Trevenna, Aurore Boréale, Rosinante, Mdlle. Marthe, and Comte de Morny were seen at their best during the past seasons, numerous cottagers, as well as the owners of larger gardens, having a fine display.

COMMENTS AND SUGGESTIONS.

I HAVE been looking through the Journal, and first I note the conclusion Professor Marshall Ward came to respecting the canker in Apple trees (page 178) which I consider a very just one. I came to the same conclusion some time since; hence my letter at the beginning of the year. Since then I have been busy concreting the bottom as suggested, and planting and transplanting about 100 trees of Pears, Plums, and Apples, and shall soon, I hope, be able to reap the benefit from it.

Next as to shelter around orchard fruit trees. I have always been in favour of it, but never before have seen Willows suggested as on page 145. I think that another move in the right direction. I have thought Poplars, Larch, Spruce, and Scotch Firs to be the best for that purpose.

As to associations for assisting less fortunate fellow gardeners, I think the idea is a good one. We see the good of the one at Birmingham, and no doubt in many more places equally as good results might be obtained. These must have the ways and means of helping many if they really are in distress, but as in numerous other societies there are sure to be black sheep, and they make it worse for the more deserving when applying for relief.

I see a fellow gardener asking for means of destroying Yarrow on his lawn. I certainly would advise him to make an exchange. I am sure that it is a useful herb for cows in milk. I have always noticed if any is found on pasture where cows are turned out you will always find that part is eaten off as short as a mowing machine could cut it, and often the grass surrounding the same is left untouched. I should hesitate if I were in his place before destroying so useful an herb.

I am pleased to see a Society of French gardeners has been formed, with the object of establishing more cordial relations between France and England on the exchange principle.

On page 176 is an article on the "Cultivation of the Orchard." If properly manured I do not see any objection to cultivate with vegetables that are off before the crops of fruits require to be gathered. I have seen such light crops as Radishes, Lettuces, Cauliflower, and early Potatoes grown with great advantage and profit to the tenant, and found employment for many hands at a time of year when employment would have been scarce. I always think if a deep trench was cut round each healthy tree, just the circle of the branches overhead, and with every root shortened, would make the trees more fruitful, and consequently more profitable, and allow the ground between to be made profitable without robbing the fruit trees as suggested.

Returning again to the orchards. I have noticed in Kent and other places as well that the best results have been obtained from plantations that have been sheltered from north and east winds, and on ground slightly rising to north, thus having the full benefit of sun south-east and south-west.

I send you these few comments for what they are worth. You can make what use you think proper of them. I can send any amount of specimens of cankered wood if required, not only fruit tree wood but of other trees I have seen growing under the same conditions.—G. C., Warwick.

I INTEND making a few remarks on some subjects which seem to be among the leading questions of the day. The proposal of a Hall for Horticulture is well worthy the support of everybody who takes an interest in gardening. It is far from creditable to the gardening community that the leading Society, to which we all look for guidance in matters relating to horticulture, has no suitable meeting place in London. The proposal which Baron Schröder made at the meeting of the Royal Horticultural Society of Tuesday, 11th February, is one well worthy of support, and I have no doubt it will be supported. We find at the meeting in question over £2000 was promised—truly a good beginning.

LARGE CHRYSANTHEMUM BLOOMS.—It is seldom that Mr. D. Thomson's writings find their way into the Journal. I wish we had more of his sound practical advice. He condemns fishing rod Chrysanthemums, and I hope he will continue to do so. I think Chrysanthemum societies might do a great deal to encourage the dwarfing process. I never could see any beauty in Chrysanthemums trained as standards or on balloon trellises, as the twisted stems give the plants an unnatural appearance. As regards Chrysanthemum societies in England, I find by Mr. Molyneux's able article on the subject, that the majority of them are in a flourishing state. All honour to Portsmouth and other societies, which, after certain hours, allow the industrial classes an opportunity to inspect them at a low price. This is not done in Dublin and elsewhere.

THE ROYAL HORTICULTURAL SOCIETY OF IRELAND.—I am sorry to have to admit that this Society is not in as good a position financially as I desire to see. At the same time I am compelled to ask, What work is it doing compared with what it might do were it placed under the control of an energetic council? Why not have its monthly meetings where papers could be read by some of the leading gardeners in the neighbourhood? Perhaps Mr. McKenna could be induced to tell how he managed to grow the fine Grapes which were the admiration of visitors at the summer and autumn shows? Might we not also have a few words of sound sense from Mr. Bedford, Straffan House Gardens, on how to grow the beautiful Orchids which are such a credit to him? I throw out these few hints, not in any carping spirit, but as a well-wisher of the Society. Anything I can do to assist it I shall only be pleased to do, if the directors bestir themselves and keep abreast with the times. When I find that the charge for admission to all the Society's shows is

half-a-crown, can it be wondered at that it does not pay? Have the artisans of Dublin no taste for such shows, that they should be thus excluded? I think it is full time that the gardeners and nurserymen of Ireland put their shoulders to the wheel and worked together for the good of the Society in question and the general advancement of horticulture. True, of late years the prospect has been anything but encouraging, yet I believe the worst is past, and that there are brighter days in store for our "unfortunate country," as we are so prone to call it.

IRISH GARDENERS.—I find in Mr. Chas. Lewis's paper on Gardening, page 158, the following sentence:—"Irishmen and Welshmen are lagging in the rear." I venture to join issue with the writer of that statement. Perhaps he has not been in Ireland to see for himself, and is therefore not well informed. Having spent the greater part of my life in this country, I think my opinion will carry greater weight than Mr. Lewis's. As regards nationality, give us the same privileges which are granted to English or Scotch gardeners, and I will venture to predict that we will not only hold our own but lead the way. My motto for every young gardener is Nil Desperandum. Let us who hold positions of trust, and who are held responsible for those who serve under us, encourage young men by precept and example to take an interest in their work, encourage sound reading, drawing, and writing—the latter, I am sorry to own, a great many are deficient in.

GARDENERS' BENEFIT SOCIETIES.—I think it would be a very good thing if all the different societies of this nature were to unite. I believe it would answer the purpose better for which they are formed. I am pleased to see on page 160, under the heading of "Gardeners out of Situation," that a correspondent mentions a Society for the relief of gardeners was formed in Belfast. I wish it every success.—R. RUSSELL, Palmerstown.



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY (Continued from page 180.)

Ophirie (Goubault, 1841).—A strong, long, rapid grower, of vigorous constitution and quite hardy, with abundant but not thoroughly evergreen foliage, having more of the character of the true Noisette than any of the Roses mentioned in this section. Not very liable to mildew or to be injured by rain, but almost always comes quartered, which is indeed its normal shape. Only valuable for its quaint coppery red colour, which I have always imagined somehow or other to be the source of that shade wherever it appears in our Tea Roses. Not free blooming, but a fair autumnal. The flowers are very small, and the plant is really not with growing, except as a curiosity or from old associations.

Rêve d'Or (Ducher, 1869).—A very strong climbing Rose, of most free and rapid growth, fine evergreen foliage, and generally great merit. It has one most desirable piece of good manners as a climber. Other Roses of this section and of the Gloire de Dijon race are apt, when grown on a wall, to become weak and bare in foliage towards the bottom, so that all the blooms are out of reach, and the plants look unsightly from the naked appearance of the lower portions of the branches. This is not the case with *Rêve d'Or*, and it adds considerably to its value as a climber, that the lower parts of the plant are generally fairly and decently clothed with blooms and foliage. Not liable to mildew, and can stand a little rain as well as most. The blooms come well in clusters, well shaped, of much the same colour as Safrano and Sunset, but rarely large enough for exhibition. It is wonderful as a free bloomer, the plant being smothered with flowers from top to bottom during the first crop, and a fair amount of blooms, if the plant be in good health, continue into the autumn. It is quite hardy, and to my mind one of the very best of climbing Roses. Not so large as Gloire de Dijon, nor quite so good as a continual bloomer, early and late, but superior to it in manner of growth for covering a wall.

Solfaterre (Boyau, 1843).—A strong climber, with large open loose blooms of little merit. It is tender, not so good as Lamarque, and would probably never have come into use if it had been raised at a later date.

Triomphe de Rennes (Lansereur, 1837).—This old Rose is a fair grower, but not strong enough for anything but a dwarf wall. It is a free bloomer, with characteristic wood and habit, but very tender, and easily killed by frost. The blooms require a good deal of heat, and to be protected from rain; they are very fine when you get them good, of most perfect pointed shape, sweet scent, and capable of reaching a full average size. It is quite good enough to show in any company when grown at its best, but we never see it, and this, perhaps the finest shaped of all this section, does not appear in the N.R.S.'s catalogue at all. It is certainly very difficult to grow well, and has probably been more often spoken of than seen during its long existence of fifty-two years.

William Allen Richardson (Ducher, 1878).—Of good growth, but not long enough to be called a climber; not liable to mildew or much,

injured by rain. This is a Rose that very soon gained considerable reputation owing to its colour, which is a decided orange, a shade till then unknown in Roses, and even now I believe it is only to be found elsewhere in the centre of *Perle d'Or*, one of the tiny *Polyanthas*. I remember being at a Crystal Palace Show, and overhearing a lady inquire of a rising professional grower about W. A. Richardson, which was then a novelty. "Oh! you would not like it," was his reply; "it is very small." It is indeed quite small, and suitable only for button-holes and decorative purposes; but I was sure he had made a mistake, and that the Rose would be much sought after, especially by ladies, and I think I am right in saying that ever since that time I have had more applications for buds for propagating purposes of this Rose than of any other variety. In shape it generally comes well, but it has most provoking manners, which I should think have often caused annoyance, for the blooms often come of a very pale yellow with no trace of orange, except perhaps at the very base of the petals; but about the time that the nurseryman who supplied it has received an indignant letter of complaint the buyer on passing by the plant sees a bud coming of the true colour. For a while they will all come true, and then some come perhaps nearly white again. This is a very provoking habit, and I do not know that the cause of it is understood. I thought at one time it was only the extra strong buds which came of the wrong colour, and it is true the weakest shoots generally produce true flowers, but I am not sure that the weather has not also something to do with it. The blooms come well shaped, and are lovely when they come true to colour. It is fairly free blooming, and pretty good as an autumnal, but requires to be well treated, and though harder than some of the Teas is liable to injury from frost.

TEAS.

The Roses of this charming section are especially liable to the following bad manners:—Impatience of rain and of frost, and of being grown as dwarfs; but these are more than counterbalanced by their good qualities: entire immunity from orange fungus, being almost all free bloomers and good autumnals, lasting better than H.P.'s, and thriving better than they do on light soil.

Adam (Adam, 1833); syn. *President* (Paul & Son, 1860).—Of poor growth and small reputation. The blooms are large, globular, and very sweet, but loose and untrustworthy, and the sort is of little value as a free flowerer or autumnal.

Amazoner (Ducher, 1872).—Of rather better growth, with long pointed buds of a good deep yellow colour, which is still much wanted in this class. Some of the Teas are only valued in the bud state for cutting and market purposes, and those that have long slender buds are much more graceful and valuable for decoration and wreaths than the globular sorts. They are useful for this purpose, even if the shape be poor when fully opened. *Amazoner* has, however, much helped by its colour, been occasionally shown successfully, notably in the winning professional seventy-two at the last N.R.S. Show at the Crystal Palace. But it is loose and wanting in centre, of no value as a free bloomer or autumnal, and can by no means be reckoned among the best.

Anna Olivier (Ducher, 1872).—A good grower with bright foliage, but the secondary shoots from the base are much stronger than the spring growth; but little liable to mildew, and will do well as a dwarf. All the Teas are liable to be spoiled by rain, the petals sticking together and then decaying. Those which are fullest and stoutest in petal are the worst, and this Rose, being inclined to be thin and not so full as some, does not suffer perhaps so much. The blooms usually come well, it being generally the case with Teas, as with H.P.'s, that the largest and the strongest blooms are the most likely to come "divided," or otherwise malformed. This is a lovely Rose of the charming pointed globular shape, and capable of reaching a full size; it requires to be grown extra strong to be fit for exhibition, but is then very effective. I remember one some years ago in a stand which won the amateur's trophy whose petals were very fine indeed, and seemed unusually stout. But it is not in general a Rose of lasting qualities for a Tea, though its extreme freedom of bloom throughout the season, charming shape in the bud, freedom of growth, and comparative hardness should give it a place in almost every list.

Bel'le Lyonnaise (Levet, 1869).—See *Gloire de Dijon*.

Bouquet d'Or (Ducher, 1872).—See *Gloire de Dijon*.

Catherine Mermet (Guillot, 1869).—Of moderate growth, with not strong foliage, rather liable to mildew, and easily injured by rain. The blooms as a rule come well, and the amateur who can get a really strong shoot and can keep the bud dry will generally be richly rewarded. This is one of the finest Tea Roses when grown to perfection. It must be strongly fed, and all the power reserved for two or three blooms; then in petal, fulness, shape, size, and lasting qualities it is near perfection, but the colour is more fleeting than the shape. This is one of the varieties which will not succeed as a dwarf, at least with me. I do not know the reason why certain of the Teas, if budded on the Briar close to the ground, do not thrive or flower so well as when budded on the same stock a little higher—18 inches will make a great deal of difference—but so it certainly is with me, and as I cannot keep standard Teas alive in severe frost in my low situation by any protection that I have hitherto tried, this little piece of bad manners is to me especially annoying. A Rose of great reputation, and by many considered highest in merit among show Teas. The raisers of new varieties bear witness to its good name by the readiness they show to class their productions as "in the way of *Catherine Mermet*." But it cannot be called hardy, of strong constitution, free blooming, a good autumnal, or "able to do anywhere."

Comtesse de Frigneuse (Guillot, 1885).—This Rose raised our hopes by its colour, for, as I have said, we want a bright, reliable, decided, self yellow among the pure Teas; but we were doomed to disappointment, as it is loose and most uncertain in shape, and not even long and fine in the bud like *Amazoner*.

Comtesse de Nadailiac (Guillot, 1871).—Of dwarf, thorny, and, unless well treated, weakly growth and foliage; not liable to mildew, but spoiled by rain, though more tolerant of it than some. This is a Rose which, despite its small growth and generally feeble appearance, rises in reputation every year, and was last season very much ahead of all show Tea Roses. The habit of this variety and that of *Princess of Wales*, is, as I tried to show lately in the *Journal*, peculiar to themselves. The smallest shoot with a little bud at the end may grow and swell for weeks before opening, and will then probably show a bloom that not only for beauty but also for size will utterly eclipse anything that can be produced from even such strong rampant growers as *Gloire de Dijon* or *Climbing Devoniensis*. Six or seven years ago I had a very small plant of this Rose. It had made hardly any growth the previous season, and, when pruned, there remained the crooked Briar stem about 10 inches high, and as thick as one's finger; above that about 2 inches of old wood, and at the end of this a tiny stump of new wood. Two buds pushed very early, resulting in two weakly looking shoots, each with a bud at the end. The season was hot, and the plant stood in a border near a short south wall. Instead of these buds opening in the great sun heat they simply grew and swelled for some weeks, the shoots thickening in proportion. One of the buds opened several days before the first available show. After being admired for a day or two it was cut as hopeless to keep for show purposes, and placed in water in the house for three days, and yet was the best bloom in a winning stand of twelve on the fourth day. The other bud opened a week later, and was exhibited at three shows. At the first it won the prize as the best Tea, at the second the silver medal as best Rose (H.P. or T.) in the show, and at the third, where no prize was given for a best Rose of any sort, it was still one of the most noticeable in a winning stand of twelve. And yet a thick strong bushy shoot may open its bud almost at once, and produce a comparatively poor bloom. It does decidedly best as a short standard, but will also yield fine flowers as a dwarf. The blooms sometimes come divided, but when good they are first rate in petal, fulness, shape, lasting qualities, and size. The colour is lovely and most changeable. Mr. Prince can show it as a yellow Rose, but this is generally when it is too much expanded, and the "point" is gone. There is much more pink than yellow in it with me. The plants are of pretty good constitution, by which I mean that they will live and not deteriorate for many years if well cultivated, will stand close-pruning, and may be planted pretty near together. Being of such small growth it cannot of course stand high in estimation as a free flowerer or autumnal, and it is often difficult to find a sufficiency of good buds for propagating purposes.—W. R. RAILLEM.

(To be continued.)

MARÉCHAL NIEL CANKERING.

I LOOK forward each week to Mr. Raillem's catalogue commentary. It is most useful and interesting, but I was astonished to read this morning the assertion from so able and experienced a grower that "there is no cure for canker" in *Maréchal Niel*. Now I have grown this Rose for many years, but I never lost a plant from canker. I think the eyes of rosarians must be blind or their hearts hardened against the poor plant's plaintive and touching cries for help if they do not see and use the remedy. Why does this Rose canker? Surely from a check to the flow of sap. Nature sometimes causes the bark to crack and so temporary relief is afforded, which assistance may be made complete and permanent by cutting with a sharp knife deeply through the canker and continuing the cut down below the ground line. I have seen scratches of a knife, evidently made in doubting unbelief, quite ineffectual, but where the cut has been made boldly and continuously the result has been a new formation of bark, a regular flow of sap, and immediate thanks from the grateful plant in the shape of vigorous shoots and abundant blooms. Bob Sawyer's remedy of hot punch for rheumatism failed, as he said, only when the patient fell into the vulgar error of not taking enough of it. *Maréchal Niel* will die of canker only from the dread of the operator to use his knife with a free and continuous cut. I hope someone else may tell us of a quicker and safer remedy. Don't say "there is no cure for canker" in *Maréchal Niel*.—HENRY B. BIRON, *Lympne Rectory, Hythe*.

MILDEW ON ROSES.

How to prevent this is a perplexing question with many, and any information is sure to be of interest to some of your readers who grow Roses under glass. Two good-sized span-roof houses at Highbury, near Birmingham, the residence of the Right Hon. Joseph Chamberlain, M.P., are devoted entirely to Roses in pots and planted out, and are now in excellent health and showing plenty of flowers, and are entirely free from mildew. Mr. Cooper keeps the hot-water pipes well supplied with a dressing of black sulphur, and to this cause he attributes the absence of mildew.—D. S. H.

AMONGST THE PRIMULAS.

FOR many years Messrs. J. Carter & Co. have annually had a display of Primulas in their Perry Hill Nurseries that well merited inspection, but the exhibition at present provided surpasses in most respects all their

previous efforts. Six span-roof houses are filled with plants in flower, the total number exceeding 6000, and all the varieties being arranged in their respective colours, a bright and effective display is the result. Large quantities of seed are required to meet the demands, and it is only by devoting special attention and much space to this work that the requisite supplies can be secured and the quality of the varieties or strains fully maintained. The latter is an essential portion of the proceedings, and no efforts are spared to preserve the distinctions already fixed, and to obtain meritorious novelties. An inspection of the Perry Hill plants affords satisfactory evidence of the success that has attended the exertions of the firm in both the respects named.

In plants that are grown for seed-bearing purposes one of the points that has to be avoided is excessive vigour. It is comparatively easy to have a plant in market condition, distinguished by luxuriant growth, large leaves, and huge trusses of flowers, but to have one in perfect health, yet free from all coarseness, is altogether different. Those who are experienced in seed-saving know quite well that more abundant and certain crops are attained from hardy firm-foliaged plants of medium growth than from their more luxuriant relatives. Recognising these facts the Manager at the Perry Hill Nursery always has the plants in 48-size pots, avoiding a larger size lest too much root space should induce an undesirable growth. The wisdom of this course is proved by the even character of the plants, their uniform health, the stout texture of the flowers, and the clearness of the colours. It might be added that well developed and properly matured seed is also more readily obtained from such plants, and the importance of this point all who are concerned in raising Primulas from seed for decorative purposes will at once recognise.

All the varieties in the collection cannot be enumerated, especially as one house is devoted to experimental crosses which have resulted in numbers of new varieties, the best of which are selected for further experiments and seeding purposes. Some, however, amongst the proved type deserve mention, and of singles Holborn Vermilion is one of the best high-coloured forms yet raised. The tint is well expressed by the name, and in contrast with white or light-tinted varieties it has a capital effect. Holborn Ruby and Magenta are two other handsome varieties of peculiarly rich shades of colour. Holborn Salmon is distinct and delicate, Elaine is fittingly described as "Ivory White," and "Pearl" is a pleasing white flower shaded with the faintest blue-grey hue. A great advance has been made with the single blue Primulas, and a variety is notable for the size, substance, and deep colour of its flowers.

The double varieties everyone values, and prominent amongst them are Snowflake, pure white; Prince of Wales, rich crimson; Carmine Empress, an extremely rich colour; and the Double Blue.

The varieties named are only a few selections, there are many others nearly equally good, and several interesting forms that are likely to yield something of a very novel character. The Gold Leaf is one of the most peculiar of these, with foliage of a clear yellowish tint, but it has been found difficult to raise a stock of them up to the present. Another is called "Picotee-edged," the flower having a mauve pencilling at the margin, while the "Yarrow-leaved" is remarkable for the finely cut character of the foliage.—X.

CATERPILLARS AND FRUIT TREES.

CONFERENCE AT Evesham.

THE CATERPILLAR BLIGHT.

A CONFERENCE of those immediately interested in preventing the ravages of insect pests in their relation to the market gardening industry took place at the Town Hall, Evesham, on Wednesday afternoon. The Mayor (Alderman Masters) presided, and there was a fair attendance, among those present being Messrs. C. D. Wise (Toddington), T. W. Beach (Brentford), A. E. Brach (Toddington), J. Hiam (Astwood Bank), W. W. Brown, G. Hunt, T. J. Slatter, Malleson (Toddington), De Laune (Toddington), T. E. Doeg, Harvey Hunt, G. Hughes, A. Watkins (Aldington), F. Hooper, J. H. Pumphrey, C. Ward, J. Lunn, Pentin (Toddington), Clare (Toddington), Eean (Offenham), &c. After the reading of correspondence between the Mayor and Miss Ormerod relative to moths which attack fruit trees, the use of Paris green, the straws-oniser, &c.,

Mr. J. HIAM placed before the assembly a collection of moths and apparatus for the destruction of caterpillars on fruit trees, &c., and proceeded to read a paper on "Moths Injurious to Fruit Trees." In doing so he said he had brought with him a few of those moths which the Mayor had referred to, and the first was the Winter Moth. (Here a box was handed round containing a number of male and female members of the family of Winter Moths, together with some thousands of eggs which had been deposited since the capture of the moths.) The number, he said, included specimens of the *Cheimatobia brumata*. He had also specimens of the Mottled Umber Moth, or Great Winter Moth. These were not very common, but they were very destructive, and it appeared that they laid about 400 eggs each, while it was reported that the smaller ones only laid 200 eggs. They would see that the Great Winter Moths were more destructive than the others from their numbers, but from some cause or other they did not accumulate to the same extent as the smaller tribe. He only met with one specimen in the autumn of 1888, and about half a dozen in the autumn of 1889. One specimen of the small moth was taken early in November, which was compared with Mr. Whitehead's drawing on page 19 of his pamphlet for 1888, and was identical. The Lackey Moth

caterpillars which Miss Ormerod mentioned were very troublesome in some localities in the summer of 1888; one colony was cut out complete, and was found to contain eighty-three caterpillars. Their tent-like nest was very conspicuous and interesting, and the methodical habits of the caterpillars were interesting to watch. The small Ermine Moth caterpillars were easily detected in groups, and easy to distribute and destroy. On the least disturbance they would descend by a fine thread or web, and might easily be caught and destroyed. The grubs of the Codlin Moth, which might be found on Apple trees, had become troublesome of late years so far as they could be, but it would be interesting to note what became of them another season should there be any fruit. From the scarcity of Apples last year the grubs could not, of course, develop in the Apples in their natural way, and might on that account have become nearly or quite extinct. They laid their eggs on the fruit and eat their way through.

Mr. GEORGE HUNT: If they could not find an Apple, could not they live on something else?

Mr. HIAM: Not that particular moth. Proceeding, he said that the caterpillar of the same moth lay in the chrysalis state on the trunks of the trees, and the only way in which he thought they could destroy them would be by washing, or encasing the trunks of the trees with thick limewash. (Mr. Hiam now exhibited a small portion of a tree branch washed with a composition of lime, cowdung, and softsoap, and which he considered would encase the caterpillars; but a thicker casing than the one exhibited would be necessary in the case of the Codlin Moth.) There was a species of the Leaf-rolling Caterpillar which was particularly troublesome, and which was very numerous, especially on wall fruit trees. They were almost as bad as the ordinary Winter Moth. He had some specimens in confinement, but the moths had since been destroyed. Mr. Hiam now presented specimens of the Gooseberry Sawfly, which he said was responsible for all the damage done to the Gooseberry plantations. Proceeding to speak of the methods for destroying chrysalis, he said that doubtless some good would result from hoeing and turning over the soil under fruit trees. Paring and burning would be expensive, and also, to some extent, detrimental to the fine fibrous roots near the surface. Where practicable he would prefer penning hens and chickens on the ground. These doubtless would be of much value, besides turning the pests to use as food. These pens might be often moved, and they could thus soon go the round of an orchard. The fowls should be kept short of food to encourage them to scratch. He regarded the methods of intercepting moths in their ascent to deposit their eggs as the most important subject of all. He was so thoroughly convinced of the utility of the grease banding, if properly and efficiently carried out, that he paid very little attention to the hoeing, &c. Where failure had occurred he was satisfied that the workmanship or the material was at fault. To avoid such failures in the future was the aim and object of his introduction of the patent barriers, on which the grease might be applied without unsightliness or fear of failure through absorption, or from wet or frost, and no danger to the life or health of the tree was to be feared. The latter objection was a great detriment to many from using the applications of grease, and the fear had in some cases been well grounded. To prevent the moths getting past the barrier where it joined the tree he proposed to wind some soft material round the tree before placing the harrier. This soft material would prevent injury to the tree, and would also prevent the moths getting past.

Mr. HARVEY HUNT: Would not that method be expensive?

Mr. HIAM: No, not with common tin or zinc. The crop of the first year would pay for ten or twenty such hands.

Mr. G. HUNT: But the trees are of different sizes.

Mr. HIAM explained that the harriers could be made in gradually increasing sizes. He did not think that the smaller sizes would cost more than 1d. each.

The MAYOR (alluding to a large size): What is the cost of that?

Mr. HIAM: I don't think they would cost 3d. taken in quantities; it would be a poor tree that did not produce threepenny-worth of fruit. The prospects of the future would be better, and the economy sure. They suffered very much damage from earwigs, and this method would prevent their ascent of the trees. At this point the speaker produced a bottle containing 2750 earwigs, which he explained were the produce of his orchard last year. At one time he was not aware of the damage which earwigs could do, particularly to Apples. They ate little holes not larger than pin holes in the Apple; that hole gradually became rotten, and when Apples were placed in quantities together decay gradually took place, and ultimately the whole mass became rotten.

The MAYOR: Do you think one daub of grease on the band would be sufficiently effectual?

Mr. HIAM: Yes, if it is put on thick enough. Proceeding, he said as to the destruction of caterpillars in the fruit trees he had read Miss Ormerod's reference to the straws-oniser with very much interest, and so far as could be gathered without seeing the machine in operation and the effects of the poison, it seemed very feasible that a vast amount of injury to fruit trees by caterpillars would be prevented by its use. There were several questions which naturally arose as to its adaptability to fruit plantations in the Evesham district, where undercropping with vegetables was carried out to a great extent. First, Could a horse be driven through such plantations without doing a great amount of damage? and if so, would it be possible to use poison among such vegetables as Cabbages, Lettuce, Asparagus, &c., and without danger to health? In May Gooseberries would be getting fit for market, and

would it be safe to use poison, or Paris green, as it was called? Another question was as to the evenness of the ground for getting about with a vehicle or machine on wheels over, for instance, Asparagus beds? The cost of a machine would also be a great deterrent, except to very large fruit growers. His idea of meeting the question of caterpillars on his own trees was to watch most carefully in April for their first appearance, as a few would doubtless have escaped the deathly bands before the application of the latter. He was of opinion that a sudden violent shaking would dislodge them even in a young state, and to prevent their re-ascent he would apply a little fresh dressing in a thinner state than that used for the destruction of the female moth. He was more sanguine of the efficacy of this method from having caught 750 spiders on one band. It would be advisable to repeat the shaking process at intervals from the end of October to the end of December. He had no fear about the state of the majority of his trees. He had neglected a few small ones, which he felt he could go over very easily. (Applause.)

EXPERIMENTS ON LORD SUDELEY'S FRUIT FARMS.

At the instance of the Chairman, Mr. C. D. WISE then read extracts from a paper which he had prepared. He said that in Captain Corbett's absence he was very pleased to give them any information as to the methods they adopted at Toddington against the spread of the blight, and also as to the success they had met with. In the first place, to come to the point at once, he would take the Evesham or winter moth. As they all knew, of course, the female moth which laid the eggs was wingless, and that it was necessary for her to ascend the stem of the tree. One thing they had to decide was the right time to put the bands on if they put them on at all, and how long should they be kept sticky—should they be put on on the 1st of October or the 1st of November, or when? They found by comparing notes for the past three years at Toddington that the bands should not be put on later than the first week in October. In 1888 they commenced banding on October 16th, and caught the first moth on October 18th. That was too late, and it showed that the moth might be earlier or later according to the season. This year they caught the first moth on October 7th. That showed that the bands should not be put on later than the first week in October. This winter they were catching moths on the bands at Toddington on December 16th, and that showed that to catch the first hatch the bands should be kept sticky until December 31st. With regard to the grease, in 1887 they used a ready-made mixture, and in 1888 they made their own stuff, which was composed of 1 gallon of Stockholm tar to 1 cwt. of grease, and they also used ordinary cart grease.

THE TREES DAMAGED.

They found without doubt that all these mixtures were injurious to the young trees, and in fact none of their trees were more than ten years old, and many only three or two years, so they determined not to use them again. He had found trees alive up to the band and dead above it, and he thought that was pretty good proof.

The MAYOR: Does that apply to young trees only?

Mr. WISE: To young trees particularly; none of ours are more than ten years old. There was no doubt that the tar formed a sort of hard band round the tree and stopped the flow of the sap, and water-proofed the cells. It was also a question whether it would not soak into the bark and become distributed in the sap. When the trees had resisted the grease he found the bark cracked and peeled off, so that if another band were put on in the same place it would no doubt greatly injure the tree, if not kill it. If it were put lower down it would be extremely dangerous. Then, again, grease was sure to soak into the bark of a young tree to a great extent. They had had the grease they used analysed, and had as yet been unable to find any which would not injure the trees. One they had used was as follows:—"The grease consists of two oils mixed with water and superphosphate of lime." The tar no doubt did the mischief. Taking all that into consideration they determined to put a band of paper on the trees, and the grease on that, and he showed specimens. The paper cost about 10s. a cwt. It was grease-proof paper, and was procured from Messrs. Adlard & Evans. The paper was ready cut to put on the trees, and one ream would do 247 trees, one sheet would do six trees, and 1 lb. of grease would do six trees. The work was chiefly done by women and boys. One woman with a basket and a pot of paste wrapped the paper round the tree and pasted the lap, and was followed by one who tied a piece of matting round the lower end of the band and could also grease it. In this way two good women could do 200 trees a day.

Mr. HOOPER asked if the tree had a rough bark, whether the moth would not crawl under the paper.

Mr. WISE replied that the piece of matting tied round the bottom of the band prevented that. In answer to the Mayor he said that he thought that in that way grease would be saved. He thought that the grease should be removed every three weeks or so, and the bands should be kept sticky at least up till Christmas. He found a moth on December 17th last year. Now they came to the question as to how, having taken all that trouble, they found caterpillars in the spring. One way in which they were beaten was that the male moth carried the female up into the trees, and deposited her in the branches. Miss Ormerod thought this was done more than was generally supposed. Another point to consider was, Were the eggs laid in stems of the trees below the grease band fertile? He found some eggs last spring, and they sent some to Miss Ormerod, and asked whether they were fertile, and in her reply she said the eggs appeared alive in many instances, and in one she found the indication of the segment of a caterpillar, and from that she

thought they might consider a sufficient quantity of eggs was alive and needed looking after. She recommended a second application of grease bands or dressing the trees with softsoap, &c. He considered that from continual greasing the moth was decreasing. In consequence of what Miss Ormerod said they got some hard scrubbing brushes, and scrubbed each tree with a mixture of tempered clay, soot, lime, cowdung, and water, and they would do the same again in the spring. Not only did it destroy the eggs, but it had a beneficial effect on the trees in cleaning the bark. Mr. Fletcher, the Dominion Entomologist of Canada, in a letter to Capt. Corbett, recommended kerosene emulsion to be applied at the end of March. The emulsion should be made of various strengths according to the age of the trees. The following was the ordinary strength:—One pint of kerosene (or refined coal oil), half ounce of common soap, half pint of rain water; the soap to be boiled in the water till all was dissolved, and the kerosene to be churned up in it. If these were used for spraying they must add nine times the quantity of water. They found that in pruning young trees a great quantity of eggs were destroyed, but the prunings should not be left about the gardens, or else the eggs would hatch. They took them all away and burnt them. They then came to the question of greasing in the spring to catch late comers. Last year they greased on March 2nd in case any caterpillars should hatch in the Currant bushes, and find their way up the Plum trees, but they caught very few. He did not think it paid to do, but should be glad to hear some practical opinion on the point.

NO MORE SHAKING.

As regarded the caterpillar when it hatched, supposing they had not greased, and their trees were covered with them, what was to be done? Shaking was not much good if they had bush fruits under. They tried that in a plantation that was badly attacked, but they shook them on to a sheet and caught thousands, and they shook them on to the Black Currants, and they attacked them, and they even tackled the Strawberries. If there were grass underneath the trees, shaking might be useful.

Mr. LUNN asked if those trees had been greased?

Mr. WISE replied that he was speaking of three years ago.

Mr. HARVEY HUNT asked whether the caterpillars came in the shape of blight on the wing?

Mr. WISE: No, certainly not. The only way in which the wind affects the growth is that it hatches them more quickly sometimes. Proceeding, he said the caterpillar immediately on hatching ate its way into the nearest bud, and there remained until the bud opened, by which time it had grown considerably. The time to kill by washing was when it first hatched, but the difficulty was to catch it at the right moment. What they wanted was a wash that would kill it after the leaves were out. They had tried everything they could think of. They had tried paraffin and softsoap, but with paraffin care was necessary. They used one pint to three gallons of water as an experiment, and killed the tree, but he thought the reason the tree was killed was because the paraffin was not properly mixed with the water. No doubt several solutions would kill the caterpillar if they could get at it. They had tried two ounces of softsoap boiled in one gallon of water, and a quarter of a pint of paraffin added, and they found that if they held a branch in it the caterpillars were killed, but syringing a tree with it did very little good apparently. Common soda was tried, first fourteen ounces to three gallons of water. This killed the caterpillars, but shrivelled up all the leaves and fruit. Then they tried eight ounces to three gallons of water, which slightly burnt the foliage but did not kill the caterpillars. But then the caterpillars were nearly full grown, and what the result would have been had it been tried before he could not say. They had also tried other things. Mr. Fletcher had written a letter to Captain Corbett, in which he stated that he was under the impression that the most satisfactory mode of treatment would be to spray about the tree with some preparation of arsenic. For his part he preferred Paris green as being the most uniform in quality. The chief thing to be guarded against was getting the liquid too strong. He went on to express his opinion that the only successful treatment was spraying on the trees just when the caterpillar was hatched. Fumigation was also recommended. Mr. Wise mentioned that last spring they were burning a road through one of the largest plantations, and there they had a very large crop of fruit indeed. He did not know whether the smoke had anything to do with it.

Mr. T. W. BEACH believed it had a great deal to do with it. A number of small fires in a plantation did a great deal of good. Mrs. Wallace always made a point of burning all refuse during the time the trees were in flower.

USE OF PARIS GREEN.

Mr. WISE, continuing, said spraying should, he thought, be done between the 14th and 30th of April, and if done then he did not think any fear need be occasioned by the use of Paris green where they had Currants, Raspberries, Gooseberries, or Strawberries, as these fruits would not have advanced enough to be contaminated, but in the case of vegetables it was a different matter. Miss Ormerod had given him some valuable information as regarded Paris green. She said that from 2 to 4 ozs. in forty gallons of water was recommended for the Looper or Codlin Moth caterpillar. That was about the same quantity recommended by Mr. Fletcher. She pointed out that the proportion of arsenic would be so minute (only about 1 oz. in forty gallons of water) to an area of about an acre of flat leafage that it seemed to her impossible that any ill results could arise from the poisonous nature of the application to human health. He thought they should give that a trial,

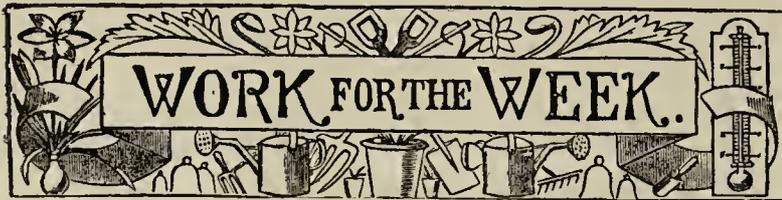
using great care and judgment in the use of it. In conclusion Mr. Wise expressed pleasure that that meeting had been held, and said that what was necessary was that they should meet together, and tell each other the results of their experiments. (Hear, hear). In support of this he had received a letter from Miss Ormerod, in which she expressed the opinion that some arrangement might be made by which meetings might be held and experiments made. She would be glad to act as entomologist, and would be happy to subscribe £10 to the object. (Applause).

A MOTH TRAP.

MR. T. W. BEACH then exhibited a lamp which was designed to catch the male moth. This was lighted at night, and a large shade at the top, and similar projection at the bottom, were well greased. The result is that when a moth flies against the glass it either flies up or down, and in either case is caught. This lamp, Mr. Beach explained, has been found very useful on dark nights.

A COMMITTEE FORMED.

The MAYOR said he did not think it would be wise for them to prolong that meeting, as they had an important meeting in the afternoon. He, however, had a resolution to read to them. It was to the effect that a Committee of six fruit growers from different localities should be appointed to make experiments and report to the future Conference, and that Miss Ormerod's offer to act as entomologist and her promised donation be gratefully accepted.—(*Evesham Journal*.)



HARDY FRUIT GARDEN.

APRICOTS.—Once more the time has arrived for affording some kind of protection to the Apricots. The trees are unusually well set with fruit buds, the only drawback being the forward state of these. Already some flowers are expanded, and a few genial days will bring the trees into full bloom. In addition to being the earliest among hardy fruits to expand their flowers they are also, unfortunately, nearly or quite the most delicate, very little frost sufficing to spoil the prospect of a good crop. Glazed copings and blinds of some kind running on rods suspended to the framework of coping, and reaching down to rings running on a wire strained to stakes about 30 inches from the wall, is by far the best system of protecting the trees. By a very simple device the blinds can be opened out or closed at will, and when cold frosty or easterly winds prevail it is a mistake not to leave them open in the day time as well as during every cold night, the trees sustaining no injury from the slight shade caused, while it is very certain they are benefited by the protection afforded. A glass coping may well be set out not less than 30 inches from the wall, but if boards are substituted temporarily these ought not to be more than 12 inches wide. Frigi domo, cotton or canvas blinds, can be and often are used in connection with board copings with the best results. Failing either of the preceding conveniences some other protective measures must be devised, as it is rarely possible to secure a crop from unprotected trees. Where there are only a very few trees it ought not to be thought too much trouble to cover these with mats every night, these being removed as soon as the frost is off in the morning. Fish nets doubled or trebled and hung permanently over the trees will preserve the bloom from moderately severe frosts, and so also will branches of half dead Spruce Fir, these being nailed or otherwise firmly secured to poles fixed against the wall.

PEACHES AND NECTARINES.—These also are much too forward, those kept closely fixed to the walls especially so, but even the buds on most of the branches purposely loosened and allowed to swing clear of the walls are also showing colour, and will soon expand. This being so it is unwise to longer delay pruning and tying, or nailing as the case may be. There never was a greater promise of abundance of fruit on these trees, quite late formed and apparently unripe shoots being well furnished with large well formed flower buds. The appearance of the trees ought to plainly denote what should be cut out, it being very evident that the fruit of Peaches and Nectarines is borne principally on the young wood formed last season; this therefore must be reserved as much as possible consistent with thinning, those badly placed, and all useless old and dead wood being cut cleanly out. In many instances it is advisable to cut some old wood with young shoots attached well back to strong young shoots; this, in addition to giving the latter more room, also serving to keep the centre of the tree properly furnished with good bearing wood. The young wood on trees under glass is usually shortened back to a good triple or wood bud, but this practice is not, as a rule, to be commended for open wall trees, both because appearances are deceptive, and also on account of leading growths being often lost. Lay in all that are sound and ripened to their full length, and rather more thickly than is advisable under glass, or say about 3 inches apart. Avoid bruising the trees in any way, and carefully remove all nails and shreds that are unduly pressing against or confining the growths, or otherwise their loss by gumming will be the inevitable result.

YOUNG PEACH TREES.—In many gardens Peach and Nectarine trees are rather short lived, and the prudent cultivator prepares for any

such contingency by preparing young trees to take their place. Not a few prefer to plant maidens or quite young unpruned trees, and these should at once be cut back to just below where they have branched strongly, or to within about 9 inches of the point of union with the stock. Under ordinarily favourable circumstances from four to six well placed shoots ought to be formed on trees thus pruned, these being at the spring pruning shortened back to a length of about 12 inches. Any of a similar size and age newly received from the nurseries to be similarly treated, and in either case sufficient branches ought to be obtained to lay the foundation of a good tree. What are known as trained trees, these having been twice cut back by either nurserymen or private growers, should be less freely pruned; in fact those already well established in a not over-rich border, will this season be fairly well furnished with fruit buds, and the weakest of the shoots ought to be reduced to about half their length, and the more vigorous left to two-thirds of their length, the cut being made to a well placed wood bud in each instance.

PROTECTING VARIOUS FRUIT TREES.—Peach and Nectarine trees, ought especially to be given some kind of protection while in flower, and Plums, Pears, and Cherries well repay for similar attention. The Peaches and Pears are the most forward, the latter being crowded with fine buds, many of which are bursting open. A moderately severe frost may in one night spoil the work of one, or it may be several seasons, and those responsible may regret when too late they did not contrive to fix some kind of protection over the trees. Not a yard of fish netting should be left where stored, and those who are prudent will have already laid in their stock of new netting. Scrim canvas is very cheap, and various shading and protecting materials are frequently advertised also at comparatively low rates. Poles or long iron rods are indispensable, as it is of the greatest importance that the netting or other material used should be firmly fixed well clear of the trees, or in windy weather it may easily do more harm than good. For all wall trees narrow coping boards are of good service, and if the long poles are arranged about 4 feet apart, firmly fixed to the boards, and let into the ground from 2 feet to 3 feet of the wall, the protecting material will as a rule be kept quite clear of the trees. It is by no means a difficult matter to protect even moderately large pyramid and bush trees, espaliers and cordons being more easily covered. The poles for the former may be made to meet over the centre, the covering somewhat resembling a bell-shaped tent, while that fixed over long thin trees may be more nearly after the model of a cloth when suspended over a hayrick.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest Forced House.*—The fruit will soon have completed the first swelling and will enter on the stoning process. If the thinning has been carefully attended to there will be little more than the necessary quantity—namely, one fruit to every square foot of trellis covered by the trees. More Nectarines are usually left, which accounts for their being undersized as compared with Peaches. If there is more fruit than specified above, remove the smallest. There is no danger of the fruit falling during stoning, provided the wood was well ripened last season, and the trees are not unnecessarily taxed by too many fruits. During the stoning process keep the temperature as equable as possible, as a sudden check by draughts of cold air in the daytime and too high a temperature in the night may prove disastrous. The night temperature may range from 60° to 65°, but 5° less will be safer in severe weather, and in the daytime 70° to 75° with sun heat, and about 65° by artificial means when the atmosphere outside is cold and the sky overcast. See that the growing shoots are secured to the trellis as they advance, keeping those retained to attract the sap past the fruit stopped at the second or third joint. Syringe with water of the same temperature as the house to keep the trees free from red spider, and if aphides or thrips appear fumigate carefully when the foliage is dry. For destroying the insects named nothing is better than a solution of softsoap, 2 ozs. to the gallon of tepid water. Syringing is apt to cause deception as to the state of the border. The surface may be wet, whilst the soil beneath may be too dry; but give good supplies, and if the trees are weak apply diluted liquid manure in a tepid state.

Second Early Forced House.—Disbud gradually, removing the strongest and ill-placed shoots and have all the leading shoots tied down, taking care not to overcrowd them. Thin the fruits by degrees, and where it has set thickly extra attention will be required, removing those on the under side of the trellis or where badly placed, but leave those that are well exposed to light and air until they indicate by free swelling the necessity for further reduction, then remove the smallest. Syringe the trees early during fine days, and ventilate early during favourable weather. The temperature may range from 55° to 60° at night and 60° to 65° by day, ventilating at the latter temperature and closing the house when the heat is decreasing, allowing an advance of 5° to 10° from sun heat.

Trees Started Early in February.—The trees are now in flower or well advanced. As there are usually more flowers than are needed, all those on the under side of the shoots should be removed by drawing the hand the reverse way of the growths, and even yet there may be more than will be required for the crop, therefore it may be necessary to still further thin the blossom where most crowded, especially on the weaker shoots. Maintain the night temperature at 50° to 55°, and 55° by day with a little ventilation, as a close atmosphere is fatal to a good set. Ventilate freely above 55°, and allow an advance to 65° with sun heat. Fertilise the blossoms in the early part of fine days, either shaking the trellis or brushing the flowers with a camel's-hair brush when the pollen of the individual flower is ripe. Syringing must cease whilst the

trees are in flower, but the floor should be sprinkled morning and afternoon, avoiding cold currents of air.

Trees to Afford Ripe Fruit in Late July and August.—The house should be closed and the trees syringed two or three times a day until the buds show colour, when it must cease. The inside borders must be brought into a thoroughly moist state by repeated waterings if necessary, and with the border thoroughly drained liquid manure may be given to weakly trees and those having a superabundance of flower buds. Where there are many flower buds it will be well to ease the trees of those on the under side or at the back of the shoots as soon as they are sufficiently advanced, a gloved hand drawn the contrary way of the growth doing it expeditiously. Where the trees are weak the border may be mulched with a couple of inches of short, rather fresh manure, which will stimulate the roots into activity. Maintain a temperature of 50° by day and 40° to 45° at night, advancing to 65° with sun and full ventilation.

Late Houses.—If the lights are off there is no necessity to replace them until the flower buds have swelled to the point of showing colour. If they can be safely kept off until early or middle March all the better, it will then be early enough to have the trees in flower by the middle of April, and then they have the benefit of sun heat. Many late houses are unheated, which is a mistaken idea of economy, as the flowers are not safe from severe spring frosts even in May, and the fruit does not ripen perfectly if the late summer be cold and sunless. A gentle heat during the flowering period does much towards a good set, and in autumn artificial heat ripens the fruit and wood, continuing it if necessary for plumping the buds.

Unheated Houses or Wall Cases.—In these the chief consideration is the retarding of the blossoming. With moveable roof lights this is most effectively done, and being off, they need not be replaced until the flower buds are somewhat advanced and are beginning to show colour, after which it is not safe. Anything required in the way of pruning and securing to the trellis should be completed. Those that have not the lights removed may need supplies of water, so as to bring the soil into a thoroughly moist state, and may have the surface mulched a couple of inches thick with rather short fresh manure. Ventilate freely, so as to retard the flowering to as late a period as possible.

Where wall cases are employed for Apricots, let the lights remain off until the flower buds begin to show white, and after they are placed on ventilate freely, as nothing is so fatal to Apricot blossom as a close moist atmosphere. Plum cases may have the lights placed on by the middle of March, similar remarks applying to Cherries, also to Pears. Perhaps Plums are never so fine and luscious as when grown under glass. They come in a fortnight before those against an open wall, and Cherries not only come in earlier, but are finer and can be kept longer, as they can be protected from wet and birds.

FIGS.—Earliest Forced Trees in Pots.—Trees plunged in bottom heat will require water abundantly, applying it at the same temperature as the bed, or 70° to 75°, and alternating with liquid manure. Maintain the temperature at 60° to 65° at night, admitting a little air at 70°, but not so as to lower the temperature, closing at 75°, and if the temperature rises to 80° all the better. Thin the fruits, if too thick, as soon as the best placed and most promising can be decided upon for the crop. The thinning should be done some time before the last swelling commences.

Early Forced Planted-out Trees.—Those started at the new year are making a good growth, and should have the points of the shoots which issue from the base of the terminals pinched at the fifth or sixth leaf. Attend to tying the young shoots to the trellis as they advance, thinning where they are too crowded. Keep the night temperature at 55° to 60°. When it reaches 65° by artificial means in the day admit a little air, increasing the ventilation with the temperature, and reducing it in like manner, closing at 70°, syringing twice a day, and maintaining a genial atmosphere.

CHERRY HOUSE.—Ventilation must be attended to. A free circulation of air should pass through the house whenever the temperature exceeds 50°, the amount of air to be regulated by the conditions of the external atmosphere. Employ fire heat only to prevent the temperature falling below 50° in the day, and to maintain a night temperature of 40° to 45°. Attend to fertilising the flowers. Watch closely for the appearance of aphides, but it will not answer to fumigate whilst the trees are in blossom, nor will it be necessary provided they were perfectly clean previous to the flowers expanding. It may, however, be had recourse to so as the fruit is set. Grubs infest the trees generally; one kind of grub rolls itself up in the leaves, and can be eradicated by squeezing, but the other is the greater pest, and will be found encased on the under side of the leaves, giving them the appearance of being scalded. From the leaves it makes its way to the Cherries, perforating and destroying them. The only means of riddance is to examine the trees occasionally and destroy the grubs.

many stocks of bees which had greatly reduced their stores. February has been foggy throughout, with many frosty nights, the lowest temperature of the month being 22° Fahrenheit on the last day of it. With the exception of a fall of less than 2 inches we escaped the heavy falls of snow experienced elsewhere. Bees carried pollen on two days only, and on the 23rd many of them flew out freely. Some hives had more young bees than most of them had in June of last year. This augurs well for the future, but we shall have to depart from our usual custom of not feeding early and supply all with plenty of food. We trust none will put off this till it is too late, as owing to the recent low temperature blossoms affording honey will not come much earlier than the usual time.

STIMULATING BEES.

Feeding bees in dribblets during the spring months had its origin at a very remote period. I doubt not that it might be for the purpose of stimulation, as it was in my early years, but at the same time I think economy was the main factor that induced bee-keepers to use the hollow stems of plants or wooden scoops, hollowed by the same means as were our ancient canoes. It is no imagination to recall the poor workman earning no more than 7s. a week, with a wife and family to support, saving from his small earnings 1s. or 2s. to buy as many pounds of sugar to dole out in small quantities to his three or four hives to preserve the bees alive till April flowers afforded the pure nectar. Dismissing these hard times from our memory we come to the point, giving our experience of what caused us to abandon the system of feeding in dribblets.

The first year of my bee-keeping was an abundant Heather harvest, the old custom of driving the bees, taking all their honey, and then feeding them with syrup was greatly practised, as was also feeding in small quantities. The spring following found some of my hives still weighty with honey, while others were light, just in the right order for stimulating, which with the zeal of a youth and a beginner I carried out to the letter, expecting early swarms; but in every case I was defeated, the unfed ones everywhere taking the lead, and proved the most profitable, and I have witnessed nothing since to alter (to me, and I hope to all others) a now stereotyped opinion.

THE HIVING OF BEES

This was then as well understood as it is at the present day. Read as I may I cannot see that anywhere in the world the management of bees was studied and so well understood as in the west of Scotland. My first swarm hived on a bough of an Apple tree 6 feet from the ground, and unaided, and without a veil or any protection, I shook the bees into the hive, and quick as thought drew a cloth over them and inverted to the proper position. When guides of comb were placed in the hive the bees were caught on a sheet, and the hive placed over them. When hived in a thicket driving into an empty hive by the aid of smoke had to be resorted to. Carbolic acid is more efficient, speedier, and better in every way.

PUNIC BEES.

From what "A. H. B. K." has said at pages 184-5 it appears we do not in a great measure differ in our opinions. It is to him alone I am indebted for the Punic bees, and I was glad to read that they are not more liable than others to excessive propolisising. Many modern constructed hives favour this, which in addition to its disagreeable nature is an absolute waste of time, which the bee-keeper can to a great extent prevent. The Punic bees with me have gathered more pollen this spring than any other variety has done, and as to their hardy nature I can corroborate all "A. H. B. K." says about them. I have not observed more than fifty dead bees, both hives included, which is about the average of the whole of my hives. I observe the Carniolians almost free from mortality, the highest number of dead being three bees only. From the appearance of the Punic bees I am in high hopes they will prove themselves to be all that has been described. I have

THE BEE-KEEPER.

HINTS TO BEGINNERS.

THE SEASON.

JANUARY was a month of high winds, much rain, and a high temperature. It was favourable for feeding, and this has saved

given these, as well as some of my other stocks, pease brose made with honey, which they very soon appropriated. During the whole of my bee-keeping experience I never witnessed hives so healthy and strong as they are this season.

JUDGING HONEY.

On one occasion when acting as Judge the Secretary handed me a printed paper stating the points honey and honeycomb were to be judged by, a reproduction got up by some of the modern bee-keepers for the guidance of Judges! I read it, then asked the Secretary what was the use of sending for me to decide which was the best sample when I was to decide according to the opinions of others with perhaps less experience? A sharp eye and a keen taste enables one to decide in ten minutes which is the best sample, while following the paper might occupy as many hours. The Secretary overcame the difficulty by explaining "that the instructions were intended for exhibitors, not the Judges," and the work was done without the "paper."—A LANARKSHIRE BEE-KEEPER.

BEEES CARRYING POLLEN.

WILL "Lanarkshire Bee-keeper" kindly answer the following questions through the Journal? Is it a sure sign when bees carry pollen now that they have a fertile queen? Where could I purchase a Lanarkshire hive, and what is the price? I wish to requeen my hives this summer, but have not sufficient time to make them in the way stated in the Journal.

Would you consider that the following plan might do fairly well? When the stock swarms take the queen from the swarm and the bees will go back to the stock; then we may expect her to swarm again in about nine days with a young queen and leave others in the stock, so that I would have young queens in both. How many hours would elapse before they would be fertile and laying?—A WORKING MAN.

[Bees carry pollen whether their queen is unfertilised or if they have none, but not with the same alacrity as they do when a fertile queen is present. A little experience soon enables one to distinguish the real state of the hive. One with a healthy and fertile queen carries larger pellets and more bees go to work than one the queen is not in a normal state.]

LANARKSHIRE HIVE.

We cannot say where these can be had at present, and it is a proof that the B.K.A. standard size has been forced upon the public. Shallow frames have been recommended in combination with deep ones, which stultifies the arguments in favour of a standard frame, and precludes the possibility of interchanging all the frames.

REQUEENING HIVES.

It is advisable to requeen every hive annually, but not to kill the laying queen of a first swarm, at least not until you are prepared to introduce a youthful laying one. Let your hive swarm in the ordinary way, provided it is a full-sized swarm; if not so, use the means to have it so, as a first swarm cannot be profitable unless it is of good strength. After nine days divide into nuclei. This does not take much time, and can be performed in the evening.

WHEN EXPECTED TO LAY.

This depends upon the serenity of the weather and the age of the queen at the time of creeping from the cell. I have had a queen fertilised on the same day she was liberated from the cell, being actually from four to six days old, or from twenty to twenty-two from the deposition of the egg. More than once I have had them three months old before they were fertilised. I have had them commence to lay sixteen hours after fertilisation, and at other times months elapsed before they commenced. However, during the summer months in fine weather it is no unusual thing to have queens laying in four days after hatching, but it is more common for queens to begin their maternal duties in about a week from the time of leaving the cell, provided the weather is favourable.

P.S.—If a Lanarkshire hive cannot be made from the instructions which have appeared in the Journal, nor had from some maker, I might try to supply one of my own at about 11s.]

TRADE CATALOGUES RECEIVED.

Samuel Shepperson, Prospect House, Belper.—*List of Florists' Flowers.*

Richard Dean, Raneleigh Road, Ealing.—*Catalogue of Primroses and Hardy Plants.*



TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (A.B.).—We are bound to regard you as an inattentive reader, for exactly what you want to know is prominently stated on page 164, the very issue of the Journal to which you refer in your letter.

Primula verticillata (M.D.).—The plant we have received is admirably grown, and we are obliged by your note, which appears on page 198.

Calceolaria Lemon Queen (A.C.).—The writer of the article to which you refer says he has not seen the name of this variety in catalogues. It is only grown in a few gardens, but no doubt will soon make its way into nurseries, and thence to the general public.

Mohoe or Mohaut Tree (Inquirer).—Possibly this is the plant to which you refer; if so its botanical name is *Paritium elatum* or *Hibiscus elatus*, a native of the West Indies, and from the inner bark of which Cuba bast is formed. It will grow in a stove or intermediate house in a compost of loam and sand.

Calanthe Regneri (P.J.).—This *Calanthe* was introduced by M. Regnier of Paris, and flowers at the same time as *C. Turneri*—namely, later than *C. vestita*, and this renders it valuable where a long supply of flowers is wanted. It succeeds under the same treatment as the species above named, and you will find some cultural instructions on page 200 of this issue.

Dissolved Bones for Vines (G.S.H.).—It is not easy to give a definite answer to your query, as you have failed to indicate the condition of the Vines—top and root—as well as the kind of soil of which the border is composed. However, a dressing at the rate of 5 cwt. to an acre or 2 ozs. to the square yard at this late period of the season will be sufficient. This of course will be watered in. After growth has begun at root as well as shoot, or about the time the bunches reach the flowering stage, apply a similar dressing, and another before the berries take the second swelling. The addition of nitrate of soda or sulphate of ammonia in about half of the above proportion would be of advantage for the two earlier dressings. Another season you must use your own judgment as to whether a heavier dressing will be of advantage after seeing the effect this year. Double the quantity may be applied after the leaves have fallen and the borders are put in order for the winter. If the outside border is regularly watered the top-dressing may be applied in the same way to the inside border.

Landslip at Side of Carriage Drive (J.B.).—Drains to be efficient must tap the water at its source, and prevent its percolating down the embankment. These should be taken some little distance into the pan or solid part, so as to form a catch and hold for the water, and should be filled with rubble over the drains somewhat higher than the pan or hard bottom on which the loose soil rests, so as to prevent the water passing over the drains, and to take it down to them expeditiously. There should be a drain lengthwise of the slope about 4 feet from the top, and a corresponding one about 3 feet from the bottom, and between these should be cross drains about 15 feet apart, which should be taken into the pan and covered with rubble as before. These cross drains should be diagonal at about an angle of 45°, and communicate with the top and bottom drains, which should have suitable falls for the water, and have proper outlets. If the slipping is due to water from higher ground, then at the top of the cutting or a few feet below should be a rubble drain to catch the water as it comes down, and convey it away either by cross rubble drains to the bottom of the slope or independently according to local circumstances.

Tuberoses Planted Out (T.C.).—Years ago, and anterior to the "bedding period," the practice of establishing Tuberoses in pots and preparing the plants for planting in the open ground in June was common in some gardens, and we have seen very fine flowering groups of these plants. A few years ago we saw many plants growing in Messrs. Carter & Co.'s nurseries at Perry Hill, from bulbs placed in the ground in the same manner as Potatoes are planted. Several of the plants so grown flowered freely towards the end of summer, and others that produced spikes were potted in the autumn and flowered under glass in the winter. We see no reason, therefore, that you should not succeed by planting in a border under glass, provided the house is very

light, otherwise the distance from the root might militate against the sturdy growth of the plants. All we can say is that Tuberoses succeed well when planted out under favourable conditions. If you transfer the plants to the border the pots must stand in the house for some days previously, as it would not be wise to remove them direct from the hotbed to the soil.

Heating Range of Houses (*A Devonshire Subscriber*).—To heat your houses satisfactorily will require a boiler capable of heating 1500 feet of 4-inch pipes, it being always desirable to have too much rather than too little heating power, as when hard firing has to be resorted to there is a great waste of fuel. Four-inch pipes are best for all the structures. The connecting pipes need not necessarily be of the same size as those within the houses, but they ought not to be less than 2 inches. We prefer, however, to use 4-inch flow and return service pipes directly to the boiler, and branch to the different houses therefrom. When the structures are detached the pipes between the boiler and house should be covered with non-conducting material to prevent waste of heat. To maintain a temperature of 80° in the first compartment eight rows of 4-inch pipes would be required; in the second compartment, to maintain a temperature of 70° six rows would be needed, or four and four return pipes for the first, and three flows and three return pipes for the second, and to maintain a temperature of 50° in the other two compartments three rows or two flows and one return pipe would be necessary. To heat the conservatory the pipes should be doubled, as we presume they are in an open trench with iron grating over them in the pathway, but if exposed or above ground two flows and one return all round would give the heat desired. We have calculated for the houses to be heated to the temperatures named in the severest weather without having to drive the boiler or furnace unduly, but if you only require the first compartment as a stove then six rows of pipes will give you sufficient heat. If the second is to be an intermediate house four rows of pipes would do, and a flow and return would answer for the other if they are required to be kept at ordinary greenhouse temperature, and a flow and return around the conservatory would be sufficient to exclude frost, but it is always best to have too much rather than too little piping, as heat radiated at a moderate is better for the plants than when given off at a high temperature, besides being more economical. We have used 1½-inch pipes for connection between the boiler and houses satisfactorily, but they are apt to get choked with sediment, and when hard water is used "fur" up. When the boiler is kept free of sediment and the pipes duly flushed, the water used being soft, there is no objection to the employment of small pipes, but we do not advise less than 2-inch. The boilers have sockets according to their size, and rarely more than 4-inch, oftener being 3 inches than over, but that is immaterial, only for a powerful boiler the water should have free access to and out of it, and for the smallest boiler a 2-inch socket should be the minimum. Diminishing sockets on the pipes, or enlarging ones will be necessary of course to meet those of the boiler. A rise of 6 feet is not too much, as in your case the houses are on different levels, and will add to rather than interfere with the circulation. Ordinarily a rise in the pipes sufficient to prevent air lodging or cause it to rise to the highest point of each compartment where it can be got rid of by an air tap or air pipe is all that is required, or a rise of about half an inch in a 9 feet length of pipe. When houses are on different levels, indeed in all cases, it is well to have valves on both the flow and return pipe of each house.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes, slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp.—(*A. A., Co. Down*).—*Hebeclinium ianthinum*, also known as *Eupatorium*. (*W. W.*).—1, *Ficus minima*; 2, *Asplenium cicutarium*. (*W. S.*).—The flower sent represents a distinct variety of *Dendrobium nobile*, the long-parted lip being suggestive of *D. Falconeri*. The position of the lip is also different from that in most varieties of *D. nobile*, and the flower is larger.

COVENT GARDEN MARKET.—MARCH 5TH.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2	0 to 6	Oranges, per 100	4	0 to 9
" Nova Scotia and			Peaches, dozen	0	0 to 0
Canada, per barrel	18	0 25	Red Currants, per ½ sieve	0	0 to 0
Cherries, ½ sieve	0	0 to 0	Black	0	0 to 0
Grapes, per lb.	2	0 5	St. Michael Pines, each ..	2	0 6
Lemons, case	10	0 15	Strawberries, per basket	0	9 1

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	0	0 to 0	Leeks, bunch	0	2 to 0
Asparagus, bundle	6	0 12	Lettuce, dozen	0	9 1
Beans, Kidney, per lb. .. .	1	6 2 6	Mushrooms, punnet .. .	1	6 2
Beet, Red, dozen	1	0 2 9	Mustard & Cress, punnet	0	2 0
Broccoli, bundle	0	0 0 0	Onions, bushel	3	0 4
Brussels Sprouts, ½ sieve	1	6 2 0	Parsley, dozen bunches	2	0 3
Cabbage, dozen	1	6 0 0	Parsnips, dozen	1	0 0
Capsicums, per 100	0	0 0 0	Potatoes, per cwt.	3	0 4
Carrots, bunch	0	4 0 0	Rhubarb, bundle	0	2 0
Cauliflowers, dozen	2	0 4 0	Salsify, bundle	1	0 1 6
Celery, bundle	1	0 1 3	Scorzoneria, bundle .. .	1	6 0 0
Coleworts, doz. bunches	2	0 4 0	Shallots, per lb.	0	3 0 0
Cucumbers, doz.	6	0 9 0	Spinach, bushel	1	0 2 0
Endive, dozen	1	0 0 0	Tomatoes, per lb.	0	6 0 9
Herbs, bunch	0	2 0 0	Turnips, bunch	0	4 0 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Acacia or Mimosa, French,			Marguerites, 12 bunches	2	0 to 6 0
per bunch	0	8 to 1 0	Maidenhair Fern, dozen		
" " " " " "	3	6 7 6	bunches	4	0 9 0
Arum Lilies, 12 blooms ..	3	0 5 0	Mignonette, 12 bunches ..	2	0 4 0
Azalea, dozen sprays .. .	0	6 1 0	Fr., large bnch	1	6 2 0
Bouvardias, bunch .. .	0	6 1 0	Narcissus, French, 12		
Camellias, dozen blooms	1	0 4 0	bunches	1	0 3 0
Carnations, 12 blooms ..	1	0 2 0	Pelargoniums, 12 trusses	1	0 1 6
Christmas Roses, 12 blms.	0	0 0 0	" scarlet, 12 bnchs	6	0 9 0
Chrysanthemums, dozen			Primula (double) 12 sprays	1	0 1 6
bunches	4	0 9 0	(single) 12 sprays	0	6 1 0
Daffodils, dozen blooms ..	0	4 1 0	Roses (indoor), dozen ..	1	6 3 0
Deutzia, per bunch .. .	0	6 0 9	" Red, 12 blooms .. .	4	0 8 0
Epiphyllums, doz. blooms	0	6 0 9	" Tea, white, dozen ..	1	0 3 0
Eucharis, dozen	3	0 4 0	" Yellow	2	0 4 0
Gardenias, 12 blooms ..	12	0 24 0	" French, per bunch	1	6 5 0
Hyacinths (Roman) dozen			Spirea, dozen bunches ..	6	0 9 0
sprays	0	6 1 0	Stephanotis, dozen sprays	0	0 0 0
Lapageria, 12 blooms ..	2	0 4 0	Tuberose, 12 blooms ..	1	6 2 0
Lilium, various, 12 blms.	2	0 4 0	Violets, dozen bunches ..	1	0 2 0
Lilium longiflorum, 12			" French, per bunch	1	0 2 0
blooms	6	0 9 0	" Parme, per bunch	3	0 4 0
Lily of the Valley, dozen			White Lilac, French, per		
sprays	0	6 1 0	bunch	4	0 6 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0 to 12 0	Foliage plants, var., each	2	0 to 10 0
Arum Lilies, per dozen ..	12	0 18 0	Genista, per dozen .. .	8	0 12 0
Arbor Vitae (golden) doz.	6	0 24 0	Hyacinths, 12 pots .. .	6	0 9 0
Azalea, various, per dozen	18	0 30 0	Lily of the Valley, 12 pots	18	0 30 0
Christmas Rose	0	0 0 0	Marguerite Daisy, dozen	6	0 12 0
Cyclamen, per dozen .. .	9	0 18 0	Mignonette, per dozen ..	0	0 0 0
Daffodils, 12 pots .. .	6	0 9 0	Musk, per dozen	0	0 0 0
Deutzia, 12 pots	6	0 9 0	Myrtles, dozen	6	0 12 0
Dracena terminalis, doz.	24	0 42 0	Palms, in var., each .. .	2	6 2 1 0
" viridis, dozen .. .	12	0 24 0	Primula (single), per doz.	4	0 6 0
Epiphyllum, per dozen ..	0	0 0 0	Rhodanthe, per dozen ..	0	0 0 0
Erica, various, dozen ..	12	0 18 0	Roses (Fairy), per dozen	1	0 13 0
Euonymus, var., dozen ..	6	0 18 0	Saxifraga pyramidalis,		
Evergreens, in var., dozen	6	0 24 0	per dozen	0	0 0 0
Ferns, in variety, dozen ..	4	0 18 0	Solanums, per dozen ..	6	0 12 0
Ficus elastica, each .. .	1	6 7 0	Tulips, 12 pots	6	0 9 0



DAIRY COWS.

THERE is much in the various statements published about dairy farming that is calculated to puzzle and mislead an inquirer, who, seeing the sum total paid annually for importations of dairy produce, feels tempted to see if he cannot turn a few units of all those millions into his own pockets. If, like a prudent man, he first of all endeavours to count the cost of keeping a cow, and to ascertain what amount of profit is possible upon outlay, he finds that the prices of cows range from £18 up to £28, and Professor Long tells him that the annual cost of "amateur" cow-keeping is quite equal per head to the higher price quoted as its value; and if upon further inquiry he meets with the statement that the average annual value of the milk of a cow is £20, he will probably decide to refrain from interference with such an apparent anomaly.

No doubt many an amateur keeps his cows at an extravagant outlay which is mostly unnecessary, and the mean annual cost of cow-keeping may be placed at £13 per head, inclusive of all payments and burdens upon the land. This amount may be taken as a maximum sum which it is in the power of a shrewd practical working farmer to reduce by at least a third; and if his cows have been selected or bred with care, the milk yield, and consequently the profits, will be considerably above the average. In proof of this we may take the annual report of the milk yields of the Duke of Westminster's herds, and we find that the average yield per head last year of one herd of forty-one cows is 580 gallons, and of another of forty-two cows is 648 gallons. To show how wide is the range of yield, we find in the first herd a cow which gave only 213 gallons, while the highest yield is 1150 gallons, or a difference of 837 gallons in the yield for the year of two cows in the same herd. In the other herd there is even a greater disparity, for the

yield of one of the cows was as low as 109 gallons, while that of the best cow reached the marvellous amount of 1206 gallons, which at the reasonable value of 8d. per imperial gallon gives the very handsome sum of £40 4s. This, though undoubtedly phenomenal, is not a solitary instance of deep milking, for two other cows in the same herd gave over 1000 gallons each, and several others each gave close upon 900 gallons, and if we take the yield of the twenty best cows in the herd the average works out at a fraction over 882 gallons per head, which at 8d. is £29 8s.

Now this last average is of especial value as showing what is possible with a herd of carefully selected cows, and it is very much in accord with the three years' average of the Monewden herd of red polls in Suffolk, which was 804 gallons per head. Compare this with the computed average of 440 gallons per head of the dairy cows of the United Kingdom, and it is at once evident how inferior generally dairy cows are, and how urgent is the need for improvement. Not an easy matter is it to form a really good herd of cows, especially by a tenant farmer, and it is in the power of landlords to greatly assist their tenants by keeping a good dairy herd at the home farm, and allowing them the use of bulls, and to purchase promising young dairy stock at reasonable rates. But farmers, whether tenants or otherwise, must not wait for such help, but rather combine both for the improvement of their cows and for the more profitable disposal of milk. It has long been notorious that the retail dealer charges the consumer at least double the price paid to the farmer, who has also to pay railway carriage, and to deliver the milk to his local station. The middleman here may talk of his risk of loss, which in reality is very low, for his is mostly a ready money business, but surely that could be well covered, and a safe margin left for profit at something less than one hundred per cent? The entire milk business is now upon an unsatisfactory footing, from the breeding of cows down to the disposal of milk. It really seems ridiculous to tell a man that an inferior animal consumes quite as much, often more food than a really good one, and that a cow at £25 or £30 may prove much cheaper than another at half the price. Without combination it is really difficult to see how farmers can hope to effect a material improvement in this matter. It is not every farmer who can afford to keep a bull, and all his care and expense in the selection of cows will in the end prove practically useless unless he can breed right, and it is for this reason that we urge landlords to do their part in a reform that in the end must be for the general good.

WORK ON THE HOME FARM.

Well might Canon Kingsley sing in praise of the north-east wind, for if the clergyman of a country parish is in full sympathy and accord with his parishioners, he must share their keen appreciation of favourable weather, and his greetings at this season of the year will be all the more welcome if he is able to offer such hearty congratulations as he can just now upon the beneficial effects of this much-abused wind, in drying the surface of the land and bringing it into capital condition for the sowing of Lent corn. Not a day is lost now for turning the favourable condition of the soil to full account for sowing spring Beans, Talavera Wheat, Peas, spring Tares, and Oats as fast as possible. Men, as well as horses, must work as long as daylight lasts, and the men should be well paid and the horses well fed and well cared for in stable and field. This is not a mere question of mercy or kindly feeling, but rather of self-interest. Very generally in the eastern counties the rate of pay for agricultural labourers is only 9s. per week from Michaelmas to Lady day, and the loss of time in wet weather often brings down the pay to 6s. or 7s. Most of these men have a wife and family dependant upon them for the means of subsistence, and it is quite impossible that they can obtain enough food to enable them to do a fair day's work. Employers' means may be straitened, but in this matter they are evidently penny wise and pound foolish.

It is generally agreed that to obtain a full crop of Barley it must be sown early in a mellow, friable seed bed, but there is considerable difference of opinion as to the precise definition of earliness in this matter. Light-land men are very apt to say, "wait a bit," because they know a few hours of sunshine after rain will enable them to set the corn drill going, but the heavy land farmers dare not let slip any favourable opportunity for drilling, or they may have to wait so long for another chance that a full crop is out of the question; and why such men will persist in giving undue prominence to such a fickle crop is difficult to understand, when it is in their power to do so much better with Oats. Like so many other things in practice where custom probably obtains a

blind following in this matter, and it must not be forgotten that under ordinary cultural condition the Oat crop does not exceed Barley in appreciable degree.

REVIEW OF BOOK.

Stephens' Book of the Farm. Fourth edition. Revised by JAMES MACDONALD. Division IV. Edinburgh and London: W. Blackwood & Sons.

IN some critiques of this great work exception has been taken to the reviser's selection of authorities. Yet it is precisely this feature which imparts such importance to the revision, which embodies the teaching, in both theory and practice, of the most prominent men of light and leading. It is this which renders the manure section in Division III. so valuable, and the opening chapter in this volume on Potato planting contains Dr. A. P. Aitkens' deductions from the results of experiments of the Highland and Agricultural Society, as well as quotations from Dr. Gilbert's Oxford and Cirencester lectures. Hear him about chemical manures:—"It is shown that the exhaustion of phosphoric acid by the Potatoes was greater than that of potash; that in the continuous growth of Potatoes (at Rothamsted) it was the available supply of mineral constituents within the root-range of the plant, more than of nitrogen, which became deficient—hence the greater produce from mineral manures alone than from nitrogenous manures alone, that it is only when all the essential elements of manure are present in sufficient quantity that the full benefit of any kind of dressing can be derived; and that when thus applied together in a well-balanced dressing, artificial (nitrogenous and mineral) manures produced a crop which for twelve successive years exceeded the average yield of the United Kingdom—decidedly greater indeed than the yield from farmyard manure alone, and only about 8 cwt. per acre behind the produce from a combined dressing of dung, superphosphate, and nitrate of soda." This chapter on Potato planting, with others on the foaling season, sow farrowing, poultry, and paring and burning of rough surfaces, brings spring work to a conclusion.

Summer opens appropriately with weather notes and a summary of summer farm work. Brief chapters follow on Flax, Hemp, and Hop culture. Root crops have full and careful treatment, Turnip culture especially being given in full detail. Southern farmers will probably take exception to the advice to use Swedes for horses, which it may be assumed are used in this way by Scotch farmers as a substitute for Mangolds, that do not answer well with them. The chapters on insect pests and fungoid attacks on crops, though not exhaustive, contain many valuable hints, and are well illustrated.

Sheep management in summer has the attention and space its importance merits; shearing, lamb weaning, and ewe drafting being explained in full detail, advice of especial excellence being given upon the importance of early drafting and a young flock. Equally sound and practical is the chapter on pasturing cattle. Well says the editor:—"Give the pasture a good start. Do not be impatient to turn the cattle from the winter quarters to the summer grazing. Let cattle of all ages remain in the steading until the grass is quite ready to receive them and able to maintain them in a satisfactory condition."

The volume closes with a well illustrated treatise on dairy work. Though last, the importance of the subject has full recognition, the nature and treatment of milk, the making of butter and cheese, all having the full light of the latest leading of the best dairy authorities thrown upon it in a series of 197 of the concise, pithy paragraphs, each with its distinctive heading, which adds so admirably to the utility of the work.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.						IN THE DAY.				Rain.
	Barometer at Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1890. February and March.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	30.83	34.8	32.7	N.E.	38.4	42.9	30.3	65.1	25.7	—	
Monday	30.599	35.3	33.9	N.E.	37.4	47.2	30.8	76.7	24.6	—	
Tuesday	30.514	34.8	33.7	N.	37.9	43.1	33.2	83.4	19.1	—	
Wednesday ..	30.284	35.2	37.2	N.	38.4	43.4	34.5	50.1	33.7	0.010	
Thursday	30.452	35.4	33.2	N.E.	38.2	40.9	31.4	76.6	25.2	0.013	
Friday	30.418	30.9	30.8	N.	37.2	40.3	27.1	74.6	23.7	—	
Saturday	30.045	30.9	29.7	W.	36.3	35.0	25.8	53.5	22.4	0.194	
	30.429	34.3	33.0		37.7	41.8	30.4	69.1	26.5	0.217	

REMARKS.

- 23rd.—Fine with sunshine in afternoon.
 24th.—A little sunshine in morning, overcast with spots of rain in afternoon.
 25th.—Bright morning, fine afternoon with some sunshine.
 26th.—Overcast all day, slight showers in afternoon.
 27th.—Very variable, a good deal of bright sunshine, but frequent showers of sleet and snow.
 28th.—Bright throughout.
 1st.—Cloudy early, snowing more or less nearly all day, and heavily from 1 to 3 P.M.
 On the whole a fine and dry week, but very wintry at the close. Temperature about 4° below the average.—G. J. SIMONS.



GRAPE GROWING BY ARITHMETIC.

WE always admire the zeal of vegetarians in the promulgation of their views. They believe in the beneficence of the doctrines they teach, and we should be sorry to thwart them in their endeavours to increase the consumption of vegetables and fruit. We desire to be very tolerant in dietary matters, and should express no regret if ten thousand persons joined the vegetarian ranks next week. We have very good friends who have not chewed but eschewed animal food for years, and some of them are as robust in stature as they are clear in intellect. Vegetable food is all they need, and they have no desire for any other kind. But it does not follow that the diet which answers so well for them would answer as well for all, nor would all equally enjoy it. Some of the most earnest of the crusaders, however, call upon meat eaters to sacrifice their preferences, or, in other words, claim from others what they themselves have not conceded, for they admit that animal food is repulsive to them, and they could not possibly eat it. Obviously, then, they are not martyrs to principle, but simply follow the dictates of the palate. Vegetarians, moreover, not only differ from those beyond the pale, but from each other within it. One of the thinnest of them strenuously advocates the use of raw fruits, pulse, and nuts exclusively; one of the stoutest pleads for good cooking. At one of their banquets a famous man and scientific food reformer strongly advocated the extended culture and consumption of Mushrooms. One of his allies, not so scientific perhaps, but more strongly assertive, forthwith and very forcibly condemned them, because, like meat, they contained nitrogenous compounds, or flesh formers; but all the same the favourite dish at the banquet appeared to be Mushroom pie, and of it the supply was exhausted too soon.

These remarks have been inspired by the perusal of a copy of the organ of the anti-meat fraternity in London. It is appropriately entitled the "Vegetarian," and is evidently a very respectable well-conducted journal. Its contents are varied and readable. One of the articles in the last issue contains advice to farmers, and pertains to a subject of at least equal interest to gardeners. It is headed "Fruit Culture." This is in bold type; but it is only fair to say that there is placed below it in very small type a sub-head in parenthesis, thus—"A Speculation." Probably after perusing a sample of this article most of the readers of the *Journal of Horticulture* will be of opinion that the headings would have been more appropriate if reversed in prominence. After referring to the normally depressed condition of agriculture, and condemning the advice of the "unpractical philosophers" relative to the increase of pastures for growing meat for the market, our (shall we call him "practical" philosopher?) tells the poor farmer who is looking for better times that they are not coming from that direction at all, but are "coming through the garden." But surely it must be some garden the philosopher has been dreaming about. Here are his words in all their poetic jingling.

"The good times are coming through the garden, up along the orchard, they are stealing past the bee hives, they are perfumed with the flowers, they are diamonded with dew, they are sparkling with the sunshine, their cheeks are beautiful with peachen bloom, their eyes are lustrous with the purple of the Grapes, their teeth are milky as an autumn nut, their breath is sweet as fresh ripe fruit—but they are yet a long way off. . . . Is it possible that

it can be all true? Is it possible that the stockbreeder's best investment is not shorthorns, but glass?—not fat beasts, but fruit frames? Is it possible that as many tons of hothouse Grapes can be raised on an acre of ground as are now produced in Potatoes? The imagination is staggered at a 'potentiality of riches beyond the dreams of avarice.' Talk of gold mines in the far Transvaal, talk of diamond fields in the barren vandt of the Boers—they are a delusion and a fraud when compared with the golden usury of Grapes or the diamond panes of glass.

"There are just 2240 pounds in a ton. Twenty tons of Grapes can be grown upon every acre of ground. Hothouse Grapes are now selling from 2s. 6d. to 3s. 6d. per lb. Take the lower figure, and an acre of glass land will give back the stupendous total of £5600. The ordinary agriculturist is well content if he can make £10 total produce for every acre of Wheat—*e.g.*, five quarters of Wheat at 30s., and 50s. for the straw. What a poor little miserable penury is this when placed side by side with the profit of Grapes? There is plenty of room here for the reduction of price which the development of Grape-growing will bring. Divide the gross total by 10, so that every child in the East End slums may revel upon hothouse Grapes at 1d. per lb., and there will still remain over £700 as the product per acre of land.

"Let us reason this matter out a little more closely in figures. Take a farm of ten acres devoted solely to Grapes grown under glass; assume the cost of erecting these vineries to be 2s. per square foot of land thus covered. This is a full estimate, and would include glazing, painting, hot-water piping, making of Vine beds, purchase of Vines, &c. The total cost for ten acres would be £43,560. Assume 5 per cent. for interest on capital invested and depreciation; this would give an annual charge of £2178. The other expenses might be estimated as follows:—Twenty gardeners at 30s. a week, £1560; coal, say 20 tons per diem for 100 days in the year, at 12s. per ton, £1200. This gives a gross annual expenditure of £4938, say £5000. The receipts may be estimated as follows:—200 tons of Grapes at 3d. per lb., £5600; but in addition to this may be reckoned the profits from early vegetables grown under the same roof—*e.g.*, Potatoes, Carrots, Peas, &c.; such fruits as Figs, Tomatoes, &c.; flowers for forcing—*e.g.*, Roses, Lilies, bulbs of all kinds; and the general profits from this branch of the business ought not to be less than £100 per acre. This gives a grand profit of £1600 for a year's work on a ten-acre farm. But suppose the Grapes to be sold at 6d. per lb.—and who would not rejoice at the near prospect of such an eventuality!—the fruit farmer's profit would mount by leaps and bounds from £1600 to £7200 per annum.

"And what is true of Grapes is equally true of all the finest classes of fruit. Peaches, Apricots, Nectarines, Figs, Apples, Pears, can all be grown with advantage under glass, and will well repay their shelter. Farmers, awake!"

Yes, "Farmers, awake," you have been sleeping too long. Bring out your £43,560 and cover your 10 acres; but why with this "potentiality of riches" before you, stop at 10 acres? A hundred acres would only be a small slice from some of your farms, and this could be covered for £435,600; then suppose, yes "suppose," you can grow 200 tons of Grapes, as the philosopher suggests, and sell them for 6d. a pound; also realise £1000 more by the odds and ends he mentions, you have a profit, don't you see, of £73,000? When you obtain it every child in the East End slums "will revel upon hothouse Grapes." Happy farmers; happy children! We tremble for the realisation of the "speculation." What a lucky thought to interpolate the word! The author of the programme must be something of a philosopher after all. We cannot see through it, and are bound to regard as the truest words those in which he suggests the good times of which he dreams "are yet a long way off."

Another and truly great vegetarian, physically and mentally, teaches somewhat differently. In a lecture on the "Foods of the Vegetable Kingdom," delivered at Manchester, Mr. E. J. Baillie, F.L.S., observed, "Education is needed in many departments of fruit culture, but we must also educate on other lines. We cannot live upon raw fruit alone, and we must educate people not only to use it but to use it properly cooked. We ought to have a cooking crusade as well as a whisky war. The cultivation, preparation, and distribution of foods from the vegetable kingdom offer oppor-

tunities for the exercise of all that is best for human faculty to the purer minds of those who behold in the world about them the imprint of the Father moulding and maintaining everything by the laws of life." This is the kind of teaching that gains the ear of the thoughtful and commands general respect, as sounder, more practical, and more attainable than the promulgation of visionary ideas in which farmers are told they can make fabulous fortunes by growing Grapes according to arithmetic.

ROTATION AND ARRANGEMENT OF KITCHEN GARDEN CROPS.

UNDER favourable conditions work in this department should for the ensuing two months be given an extra amount of attention, and all quarters be allotted their respective crops. Assuming that digging or trenching has been progressing apace and manure in adequate quantities has been supplied, the surface should in the course of a few weeks be in that mellow and friable condition that can only be obtained by the disintegrating action of slight touches of frost followed by dry east winds. When the ground is in such a condition no delay should occur in sowing the seed, as a sudden change in the weather may cause the state of the seed bed to be such that several weeks may elapse before it is again fit for their reception, and unless plans and arrangements are made in good time to determine the position and extent of the principal crops considerable difficulty will be experienced in more ways than one during the coming season. Much diversity of opinion exists as to the imperative necessity of the proper rotation of crops, but I am strongly in favour of carrying on a systematic order of cropping—not only on account of the scientific advantages the principle evolves, but also for practical convenience and pecuniary gain, for if a plot of ground can by the aid of intelligent scheming be made to produce two crops in the same time on the same extent of surface as one under ordinary treatment, and that too without unduly interfering with the requirements of each, such a proposition should at least have a hearing.

Taking for granted the idea that cultivated ground required a periodic rest has long since been relegated to the past, we will commence a survey of an imaginary kitchen garden where a supply of fresh vegetables has to be maintained throughout the year, and that too in such quantities that unless every foot of ground is not under a system of almost continuous cropping the demand could not be met. Such a garden at the present time would have a good breadth of autumn-planted Cabbages that were placed out immediately the Onion crop was harvested; one batch of Ellam's, sown in June or early in July, followed the Tripoli or autumn-sown Onions, and the other larger portion from August sowings of general varieties followed the spring-sown crop cleared off in September. Another equally extensive quarter would form the backbone of the winter supplies by being devoted to Brussels Sprouts; these sown on a slight hotbed in February, and planted out in April 2 feet apart in the alleys formed by earthing up the early kidney Potatoes that had been previously planted in rows 3 feet apart. These being required for use immediately frame and sheltered border supplies were exhausted no injurious interference with the Brussels Sprout plants took place, and when all the Potatoes were cleared a slight dressing of suitable artificial manure should be sprinkled on the ground around the stems of the Brussels Sprouts, and the soil from the Potato ridges levelled throughout, this resulting in a sturdy upright growth, producing firm solid sprouts from the ground to the top of the 3 feet stems. As we see them now divested of all but the crowns, and a few though none the less acceptable buds nestled under the protecting leaves at the summit, an inexperienced man would probably consider them as encumbering the ground, and proceed to decapitate them (if that had not already been done, with the mistaken notion of forcing them to produce sprouts more freely), and then consign the stems to the rubbish heap; but such would not be the procedure under the system advised. As before stated, the rows are 3 feet asunder. This space is absolutely necessary for the proper development of the plants, therefore when the plants are first put out under ordinary circumstances this surface, if not occupied by another crop, is absolute waste until the time when the advancing growth of the plant covers it, and in my estimation early Potatoes are the most desirable crop, as their requirements—both in regard to earthing up, and again when the tubers are dug—proves a decided advantage to the Sprouts. Again, the distance apart is of some importance when, as at the present time, instead of clearing them off, as is sometimes done, trenches a foot wide and 18 inches deep are driven between alternate rows, in the bottom of which a good layer of not too rotten farmyard manure is forked up, a few inches of soil

placed on this, and they are now ready for the main crop Peas. Meanwhile the Brussels Sprout stems will be producing tender succulent shoots, that, should the spring be late, will prove very acceptable to keep "the baskets going" during a few weeks that sometimes occur before the spring Cabbage is fit for use, while at the same time the crop of early, second early, and Marrow Peas are coming on apace, thanks to the protecting influence of the Sprout stems. When the supply of green stuff from other quarters is assured no time should be lost in removing the stems and getting the ground between the rows of Peas forked over, and having drawn three shallow drills some 6 inches apart down the centre of the open space Round or Summer Spinach should be sown at once. The first sowings of Peas in these trenches should consist of Veitch's Early Selected, William I., and Duke of Albany. An equal quantity of each sown at the same time, say about the last week in February or early in March, will form a reliable succession to each other, and these, followed by further fortnightly sowings of the "Duke" until the end of June, when *Ne Plus Ultra*, followed by William I., will give a good supply under favourable circumstances far into the autumn.

But to resume our survey of other quarters. A good crop of Turnips, of the Red Stone and Chirk Castle type, will have resulted from a favourable opportunity of raising the plants quickly by sowing on a plot that had been made especially rich for mid-summer Cauliflowers, and also conveniently vacant in time for the sowing of winter Turnips. A good quantity of these will be stored in cool places for soup-making purposes until the frame varieties are fit for use; the remainder will furnish useful greens, and will be finally cleared away or dug in with manure, and the quarter planted with Leeks from the seed beds. Another piece of ground will probably be occupied with the stumps of the previous spring Cabbage, that have done good service throughout the summer and autumn, and even now should not be despised before a continuous supply is apparent. On several occasions have I seen the folly of being too hasty in destroying old stumps of Brussels Sprouts, Cabbages, and the various winter greens on the first appearance of fine spring weather, which proceeding has resulted in an almost "green famine," consequent on a change in the weather, and what at first promised to be a fine early spring eventually proved one of the latest and coldest on record.

This again brings the forcible necessity of some arrangement whereby the supplies can be held in reserve in case of emergency, and at the same time not interfere with the operation connected with other crops. This can only be accomplished by careful forethought and the following out of a fixed plan in the rotation of these crops if the object is to obtain the fullest return possible.

Plantations of early Broccoli should now be turning in. The seed was sown last May and June, and the plants put out after early Potatoes were lifted. Later sorts of Broccoli were pricked out from the seed-beds and followed later Potatoes, and some of the latest planted behind a north wall should prolong the season until the early forced Cauliflowers are fit to cut. These quarters can be cleared of stumps and planted with Potatoes at once, and portions according to discretion dug and manured for Dwarf Beans and other suitable succession crops. Not that I advocate the absolute necessity of following a hard-and-fast rule of the scientific principle of crop rotation, which is that a crop of the same natural order should not follow one also belonging to the same order, yet when it can be complied with in a convenient manner, this idea being based on a reasonable theory, is worthy of consideration. Other quarters that have been cropped with Carrots, Parsnips, Salsafy, and Leeks will have been manured, dug, or trenched at discretion, and will be now awaiting the reception of the crops, as will also other plots previously occupied with Savoys, Coleworts, late Lettuces, late Peas, late Cauliflowers, Dwarf and Runner Beans, and various small crops that occupied the ground until destroyed by autumn frosts.

Warm sheltered borders and cosy nooks should have the best of attention to enable them to be made the most of. Early Peas, Beans, Cauliflowers, Lettuces, Potatoes, and Radishes can be obtained fit for use several weeks before those from more open quarters, and, by good management, in satisfactory quantities, from these always too restricted spaces. At present they should be in readiness for planting and sowing when a favourable opportunity occurs. One of the most prized of early crops is that of Peas, and this is invariably the same in the majority of establishments; and as hard forcing cannot be carried on to any great extent with the same facility as with Dwarf Beans, this also renders them more valuable when produced early and in fair quantities. A practice that I have found to meet these requirements must be devoted to a separate article, as this is merely a survey to locate the crop for the ensuing season.

Where Potatoes are grown in bulk in the garden proper, they

should be so arranged to follow winter greens, such as Turnips and Coleworts, so as to allow no loss of time, as would often occur if Brussels Sprouts and Broccoli were the predecessors. But if it can be managed, late vigorous varieties, such as Magnum Bonum, White Elephant, and Champion are for several reasons best grown on farm land. Although the quarter occupied by Cabbages last season will come in well for early or late varieties of strong growth, it is always desirable to have as few late Potatoes in the garden as possible.

Celery will require a good proportion of space allotted to it. Late Broccoli makes a good crop to arrange for this to follow, though not the best; but the disadvantage of following late Peas or Dwarf Beans lies in the ground remaining vacant for a longer period than we should wish, although in following these crops the soil is less likely to be infested so badly with slugs as when succeeding Cabbages of last year's crop, or Brussels Sprouts that have had a season's opportunity of harbouring these undesirable pests. The space that is now becoming vacant by finishing up this season's Celery may be portioned out for Carrots and succession Marrow Peas, Turnips, Onions, or laid out for new Strawberry beds, old plantations of which may be destroyed after the fruit is gathered, and Broccoli planted on the undug surface with the aid of a crowbar. This is a practice I would recommend where the crops of Broccoli suffer from frost, the firm woody stems resulting from the hard root-run being better able to withstand the frost; also the Strawberries are ready for clearance in convenient time for the Broccoli plants.

Seakale and Parsnips are well adapted to change plots, but care should be taken not to allot the quarters occupied by Seakale indiscriminately, and unless it can be changed, to allow a strong growing crop to follow, as Parsnips or late vigorous Potatoes; it is best to accept the lesser of the two evils, and keep it to one permanent quarter where, with generous manuring, it will continue to thrive for a number of years. Like Horseradish, this root is most difficult to eradicate when once established in good quarters.

Such is an outline of a few methods by which the produce may be augmented from limited sources, and although much can be done by careful planning, care should be taken to determine whether intended arrangements have the true ring of economy, for unless such be done the probable results are not always of a satisfactory nature.—M. COOMBE.

GARDEN PESTS.

If a fresh planting be made, be it of flowers, vegetables, or trees, that is where pests will be found, and of equally general application is the fact, that once allow a bird or other creature to make its ravages unmolested, and it will not be long before all its friends and relatives will be feasting and making merry. I have seen acres of young plantations surrounded with 3-foot wire fencing destroyed in a few weeks, for the simple reason that the earlier colonists were allowed to work unmolested, and their numbers were steadily increased by others who had doubtless heard of the wonderful land. When once a footing has been gained the mere stopping of holes is not always sufficient to prevent their incursions, for educated hares will jump fences, and their less agile friends, the rabbits, can find a way over by climbing them. It is one of the commonest experiences, where pheasants are allowed the run of gardens, or where peacocks ramble among flower beds, for both these birds to take to certain plants one season, and another year their taste, judging by the plants attacked, be entirely changed. But I think the explanation is to be found in both cases in the birds beginning at the commencement of the season on some particular plant, and continuing to eat that in preference to others, the following year a different plant being most ready for consumption when operations are resumed.

The only efficacious antidote is annihilation, but the gardens and grounds are numerous where no such drastic measures dare be entered on. The following means of lessening damage, it is hoped, may be useful. Rabbits can only be kept at bay by means of efficient fencing; but much fencing, though it looks efficient, is really not so. In the first place the mesh is often too large; 17 gauge 1½-inch mesh is the largest size that should be used, but sometimes a young rabbit will find its way through this size. Twice in eight years I have known a rabbit pass through this mesh. If the plantation or ground to be protected is of any extent the wire must be 3 feet wide. The method of supporting this wire may either be by means of wooden stakes and rails or of iron and wire, but either way it must be so fixed in the ground as to puzzle rabbits to burrow under it. Merely sinking the wire a few inches in the ground will not be sufficient; but by bending it outwards 3 inches and sinking the whole sufficiently deep to leave 2 feet 6 inches above ground the rabbit will be a wonderfully

cute one that will find his way through. For single trees the wire need not be sunk, and 2-foot wire is quite deep enough. Where hares are plentiful it is necessary to employ a wider wire for Hollies, hares being very partial to these, standing over the edge of the wire to reach the leaves and shoots. Standard or bare-stemmed trees may be protected by a collar of netting, but generally a mixture of clay with cowdung and water, painted as high up as the animals can reach, will afford an efficient protection and keep its properties good for at least twelve months.

Squirrels are particularly destructive, and there is no cure save shooting. Where squirrels abound no Conifer is safe, and in spring much damage is done to deciduous trees; but it is when they visit the garden that they become unbearable. I have watched individuals operating on Peaches, Plums, and other fruits, and the certainty with which they selected the best specimens in succession, and the astonishing rapidity with which these were in turn discussed and others taken up to disappear in a like manner, would have been interesting had one's feelings been less personal. The only safety for fruit is to kill the first intruder, as if left for a few days every squirrel within visiting distance will be on his holidays, and have Mrs. S. and those of the family who are of a visiting age along with him.

The rat not undeservedly bears the name of being the most longheaded and the least sentimental of all vermin, and consequently he is the most capable of looking after his personal safety while on his ravaging expeditions. If no attention is paid to him, or if the duty of extermination is performed in a perfunctory manner, he will stay on in the same place, bring up a family worthy of patriarchal times, and have a good time of it generally. But if the chase is hot he and all his belongings will quickly shift their quarters, though in due time an incursion will be made to see how things are going on. When times are hard the rat will eat anything. Of course he prefers a well ripened bunch of Grapes or a luscious Pear, and in the way of vegetables if he can set up a home in a pit of Potatoes he is fairly comfortable. Newly planted bulbs are choice morsels, and when very hard pressed he is not averse to the stems of Sprouts and Broccoli, with a bit of Pelargonium for a change. Trapping will destroy a few, but the great drawback to traps is the assumption the untrapped portion of the community form that if a trap is bad for one rat it must be bad for all, and consequently they either get out of the way of traps or withdraw to another feeding ground for a time. There is one thing which a rat is too weak to pass, and if he partake of it the one time his chances are over, and that is phosphor paste. Mix the paste on bits of bread, and wrap it in paper rolled up in the shape which grocers employ for small purchases, leaving just a little bit open to allow the curious to see there is something worth investigating; and very soon a pretty quarrel will ensue as to who is to have the most, the morning revealing the partakers of the feast close by in comfortable attitudes, but all dead.

Mice, like rats, are very destructive, but apart from a good hunting cat, trapping is the best method of destruction. When they are numerous or hard on Peas I have found this to keep them at bay. Fill a bottle with petroleum, close the mouth with a cork in which a quill is inserted, and through which the oil can be sparingly dribbled over the surface of the lines under which the Peas are.

Of feathered pests the wood pigeon is very destructive, and difficult to get rid of when once a garden becomes frequented. I know no better method of keeping them away than by going over all the nests in the near neighbourhood of the garden, taking and destroying them and the eggs. When this is done effectually no pigeon will trouble the garden. But once allow a pair to feed, and when and where the nuisance will stop it is impossible to say. They break through nets, and are averse to no kind of young vegetables or fruit, Cauliflowers, Broccoli, Cabbages, Peas, Currants, Gooseberries, and Strawberries being the crops most commonly destroyed. Though pheasants do not perhaps come rightly under the name of vermin, yet as they are often the means of great loss, a few words here may not be out of place. One thing ought not to be done with these, however great the temptation may be, that is to kill them. No proprietor fond of game would allow such a thing; and if on pointing out the damage that is being done no remedy is provided, then all that the gardener has any right to do is to protect his crops, and if possible starve them out. Pheasants are particularly fond of Pinks, Carnations, Potatoes, Artichokes, and young Peas. In certain seasons they will evince a liking for young Lettuces and Brassicas, and a few other plants, but the above are chiefly those damaged. The two first named we have to protect with herring nets during the winter season. Peas have always to be protected. I have seen a few hundred yards destroyed during the dinner hour through being left uncovered for

that short time. They begin directly the Peas are sown. A sure method is to sow in narrow trenches, and either draw herring nets over the ground or cover each line with wire netting, taking care that the ends are closed. As a rule I prefer the herring netting, as it is necessary to protect until the plants are a good size, and these can be drawn over the stakes with little trouble. To keep the pheasants from Lettuces I have tried dusting the foliage with soot. This is sometimes effective.

Blackbirds and thrushes must be kept from fruit by means of close netting, and it is a very great consideration to have fruit quarters protected before any fruit is ripe. Unless one has had experience it would hardly be credible the difference this makes, for if once either of these begin a course of fruit diet they will eat nothing else as long as it is to be seen or found. Of late years sparrows, chaffinches, and other small birds have been enormously destructive to autumn crops alike in fields and gardens. Here we have to grin and bear it. A neighbouring proprietor set his gamekeepers on to the sparrows, but these proved too much for guns and shot, and they had to give up the pursuit defeated.—B.

DAHLIA ANALYSIS—1883-1889.

At no previous show have the different types of Dahlia been so completely represented as at the Exhibition of the National Dahlia Society held at the Crystal Palace in September last. The centenary class formed a new feature of special interest. Several of the exhibits in this class, in which all kinds of Dahlias were for the first time gathered together into one group, were remarkably good. To say nothing of the beauty of the individual flowers and the great taste displayed in their arrangement, these collections were very instructive, for they showed at a glance what a variety of form and colour this grand early autumn flower is capable of, and at the same time what rapid advances in nearly all sections it is now making. Only a few years ago such effective and varied displays would have been altogether out of the question, owing to the want of a sufficient number of suitable varieties.

The introduction of this centenary class has unfortunately not proved beneficial to our analysis, for many of the flowers which would otherwise have appeared in the ordinary classes were used to adorn these novel and interesting collections. Fortunately the Shows and Fancies

suffered much less from this cause than the Pompon, Cactus, or single Dahlias. Owing, however, to the dry and forcing weather which prevailed at the end of August and during the early part of September, the competition in these two divisions was less keen than at either of the two preceding shows, for under these unfavourable conditions, and particularly in the early districts, many promising young blooms destined for the show were over before the Exhibition took place. The total number of Show and Fancy Dahlias staged in competition at the last seven shows has been as follows:—

	1883.	1884.	1885.	1886.	1887.	1888.	1889.
Shows... ..	692	754	837	840	1106	1158	922
Fancies	269	425	355	387	350	315	274
	961	1179	1192	1227	1456	1473	1196

It will thus be seen that the Show Dahlias were last year more numerous than at any of the previous exhibitions, with the exception of those of 1887 and 1888. On the other hand there were scarcely any more Fancies than in 1883—the first and smallest exhibition of the series.

The averages upon which the positions of the different varieties in the two tables depend have been calculated as follows. For those Dahlias sent out prior to 1883, the average is for the whole seven years, for the 1883 sorts six years, for those of 1884 five years, for those of 1885 four years, for the 1886 kinds three years, and for those of 1887 two years. The still newer kinds find places according to the number of times they were staged at the last Exhibition only.

Coming now to the table of Show varieties, the most striking feature, as has been the case in recent years, is the remarkable position occupied by Mrs. Gladstone in respect to all other Show Dahlias, a position altogether unique amongst florists' flowers; indeed, at the last four exhibitions this superb flower has been staged very nearly twice as frequently as any other Dahlia, and was to be seen in almost every stand in which it was admissible. The following established varieties appeared in unusually good form last year—William Rawlings, Ethel Britton, Prince Bismarek, Clara, Harrison Weir, Imperial, George Rawlings, and notably Shirley Hibberd, which was shown in many more stands than at any previous exhibition. On the other hand those two old favourites, the Hon. Mrs. P. Wyndham and Henry Walton, which until the appearance of Mrs. Gladstone stood together at the head of the analysis, were staged only about half as many times as in former years. The same might also be said of Goldfinder, Mrs. Harris, T. J.

FANCY DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown in the Seven Years.	Number of Times Shown in 1889.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	18.0	22	Mrs. Saunders	1872	Turner	Yellow and white.
2	16.5	12	Gaiety	1879	Keynes	Yellow, red and white.
3	15.6	16	Rev. J. B. M. Camm	1873	Keynes	Yellow and red.
4	12.1	7	Chorister	1881	Keynes	Fawn and crimson.
5	12.0	16	Henry Eckford	1886	Rawlings	Yellow and red.
6	10.6	16	Duchess of Albany	1884	Turner	Orange and crimson.
7	10.5	12	Flora Wyatt	1871	Keynes	Orange and red.
8	10.0	11	Mrs. N. Halls	1881	Rawlings	Scarlet and white.
9	9.9	14	Hugh Austin	1881	Keynes	Orange and red.
10	9.6	10	George Barnes	1878	Keynes	Lilac and crimson.
10	9.6	9	Peacock	1877	Turner	Maroon and white.
11	9.3	3	Fanny Sturt	1868	Pope	Red and white.
12	9.2	6	Professor Fawcett	1881	Keynes	Lilac and brown.
13	8.5	4	John Forbes	1882	Keynes	Maroon.
14	8.3	5	Henry Glasscock	1875	Keynes	Buff and crimson.
15	7.8	6	Rebecca	1883	Keynes	Lilac and crimson.
16	7.7	3	General Gordon	1885	Keynes	Yellow and scarlet.
17	7.1	6	James O'Brien	1881	Keynes	Yellow and crimson.
18	7.0	7	Dorothy	1888	Keynes	Fawn and maroon.
19	6.7	3	Egyptian Prince	1873	Keynes	Orange and red.
20	6.6	1	Miss Browning	1880	Keynes	Yellow and white.
21	6.3	0	Miss Lily Large	1876	Keynes	Yellow and crimson.
22	6.0	9	Edmund Boston	1887	Keynes	Orange and crimson.
22	6.0	1	Hercules	1877	Keynes	Yellow and crimson.
23	5.7	5	Eric Fisher	1886	Keynes	Buff and scarlet.
24	5.5	8	Frank Pearce	1886	Rawlings	Rose, striped crimson.
24	5.5	1	Lotty Eckford	1884	Eckford	White and purple.
24	5.5	7	Prince Henry	1887	Fellowes	Lilac, striped purple.
25	5.3	1	Oracle	1877	Fellowes	Yellow and crimson.
26	5.1	1	John Lamont	1875	Keynes	Maroon and black.
27	5.0	3	Pelican	1886	Keynes	White and purple.

Saltmarsh, Joseph Ashby, James Vick, Flag of Truce, Vice-President, and several other well-known kinds.

There are five 1886 varieties in the list. Of these Harry Keith now occupies a splendid position, standing as it does only second to the premier flower—Mrs. Gladstone. Next come Mrs. W. Slaek and R. T. Rawlings, both at No. 8, the former having gained two and the latter no fewer than thirteen places since last year. Mr. Glassecock (No. 44) has made a slight move upwards, while Thomas Hobbs has fallen from No. 26 to No. 33.

The year 1887 was prolific as regards new varieties. At the head of these, at No. 9, we find Colonist, and a little lower down J. T. West

(No. 14), almost immediately followed by Willie Garratt. Then in the following order come Queen of the Belgians (No. 29), Crimson King (No. 32), Mrs. G. Rawlings (No. 40), Bendigo and Eclipse (No. 42). Colonist and Willie Garratt have each made good progress since last year, while Crimson King, Mrs. G. Rawlings and Eclipse have all more or less improved on their former positions.

The following appear for the first time in the analysis. Purple Prince and Nellie Cramond, both of which came out in 1888, already stand at No. 20 and No. 29 respectively, while Maud Fellowes, an 1889 variety, just manages to secure a place.

In the table of Faneics, quite unlike that devoted to Show varieties,

SHOW DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown in the Seven Years.	Number of Times Shown in 1889.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	42.8	45	Mrs. Gladstone	1884	Hurst	Pale blush.
2	26.0	35	Harry Keith	1886	Keynes	Rosy purple.
3	22.4	22	James Cocker	1871	Keynes	Purple.
4	21.7	28	William Rawlings	1881	Rawlings	Crimson purple.
5	21.0	10	Hon. Mrs. P. Wyndham	1881	Keynes	Pale yellow and rose.
6	19.6	11	Henry Walton	1873	Keynes	Pale yellow and scarlet.
7	17.5	22	Ethel Britton	1880	Keynes	White and purple.
7	17.5	7	Goldfinder	1881	Fellowes	Yellow and red.
8	17.3	17	Mrs. W. Slaek	1886	Keynes	Blush white and purple
8	17.3	28	R. T. Rawlings	1886	Rawlings	Clear yellow.
9	17.0	19	Colonist	1887	Keynes	Chocolate and fawn.
10	16.4	16	Prince of Denmark	1881	Fellowes	Dark maroon.
11	16.2	8	Mrs. Harris	1873	Harris	White and lilac.
12	15.6	18	Prince Bismarck	1879	Fellowes	Puce.
12	15.6	25	Shirley Hibberd	1881	Rawlings	Dark crimson.
13	15.3	14	Mrs. Langtry	1885	Keynes	Cream and crimson
14	15.0	11	J. T. West	1887	Rawlings	Yellow and purple.
14	15.0	8	T. J. Saltmarsh	1885	Rawlings	Yellow and chestnut.
15	13.5	15	Willie Garratt	1887	Garratt	Bright cardinal.
16	13.4	4	Joseph Ashby	1879	Turner	Shaded orange.
17	13.3	5	James Vick	1881	Keynes	Purplish maroon.
18	12.0	6	Flag of Truce	1868	Wheeler	White and lilac.
18	12.0	2	Vice-President	1868	Keynes	Orange.
19	11.8	18	Clara	1879	Rawlings	Rosy peach.
19	11.8	17	Harrison Weir	1883	Rawlings	Yellow.
20	11.0	11	Purple Prince	1838	Turner	Rosy purple.
21	10.9	9	Mrs. Dodds	1881	Keynes	Blush and lilac.
22	10.8	11	John N. Keynes	1871	Keynes	Yellow.
23	10.6	6	Burgundy	1877	Turner	Dark puce.
24	10.0	14	Imperial	1883	Keynes	Purple, shaded lilac.
25	9.7	13	George Rawlings	1882	Rawlings	Dark maroon.
25	9.7	12	Miss Cannell	1881	Eekford	Cream and crimson.
26	9.5	8	Mr. Harris	1881	Rawlings	Crimson scarlet.
27	9.4	13	Mr. Shirley Hibberd	1877	Rawlings	Cream and pink.
28	9.3	15	Hope	1833	Keynes	Light rosy lilac.
29	9.0	5	Mrs. F. Foreman	1884	Keynes	Lilac.
29	9.0	8	Mrs. G. R. Jefferd	1884	Keynes	Deep yellow.
29	9.0	9	Nellie Cramond	1888	Keynes	Purple, shaded cerise.
29	9.0	7	Queen of the Belgians	1887	Rawlings	Cream and pink.
30	8.7	9	Mrs. John Laing	1883	Keynes	French white.
31	8.6	7	Earl of Ravensworth	1883	Harkness & Son ..	Lilac.
31	8.6	14	John Bennett	1875	Rawlings	Yellow and scarlet.
32	8.5	9	Crimson King	1887	Keynes	Deep crimson scarlet.
32	8.5	10	James Stephen	1882	Keynes	Orange scarlet.
33	8.3	4	Thomas Hobbs	1886	Keynes	Purplish rose.
34	8.2	8	John Standish	1872	Turner	Crimson.
34	8.2	2	John W. Lord	1877	Keynes	Orange buff.
35	7.9	6	Constaney	1878	Harris	Yellow and lake.
36	7.8	7	John Henshaw	1883	Rawlings	Ruby crimson.
37	7.6	5	John Wyatt	1877	Keynes	Crimson scarlet.
38	7.3	8	Champion Rollo	1881	Keynes	Orange.
39	7.1	3	Royal Queen	1875	Eekford	Cream and crimson.
40	7.0	7	Joseph Green	1881	Keynes	Crimson.
40	7.0	7	Mrs. G. Rawlings	1887	Rawlings	Blush and purple.
40	7.0	5	Sunbeam	1881	Fellowes	Buff.
41	6.9	8	Walter H. Williams	1881	Keynes	Bright scarlet.
42	6.5	4	Bendigo	1887	Turner	Purplish crimson.
42	6.5	9	Eclipse	1887	Keynes	Orange scarlet.
42	6.5	2	Mrs. Douglas	1845	Rawlings	Scarlet.
43	6.4	9	Herbert Turner	1873	Turner	French white.
44	6.3	7	Mr. Glassecock	1886	Rawlings	Purple.
44	6.3	6	Rev. J. Goodday	1879	Rawlings	Maroon, shaded purple.
45	6.1	4	Ovid	1874	Turner	Purple.
46	6.0	6	Maud Fellowes	1889	Fellowes	Pale pink, shaded purple.

the premier position has throughout been fiercely contested. For the first four years Gaiety took the lead, but in 1887 had to give way to Mrs. Saunders. In the next analysis they were bracketed as equal, and now Mrs. Saunders once more proceeds to the front. The Rev. J. B. M. Camm has also proved very constant, never dropping far behind these two well matched rivals. Mrs. Saunders, Duchess of Albany and Hugh Austin were particularly well shown, but not so Gaiety, Chorister, Fanny Sturt, John Forbes and General Gordon, which were staged much less frequently than usual.

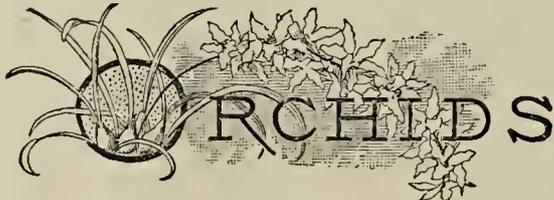
There are four 1886 Fancies in the analysis, Henry Eckford, which has already risen to No. 5; Eric Fisher, which has not improved on its previous position, being still at No. 23; Frank Pearce (No. 24) which appears on the list for the first time, and Pelican, which has dropped to the very bottom of it.

The year 1887 is represented by Edmund Boston at No. 22 and Prince Henry at No. 24, while Dorothy, the sole representative of 1888, has already mounted to No. 18.

Pompon, Cactus and Single varieties at the 1889 exhibition of the National Dahlia Society. Pompon.—Over fifty sorts were staged in all. Those shown four or more times arrange themselves as follows: E. F. Junker, Darkness, Favourite, Rosalie, Golden Gem, Gem, Little Duchess, Cupid, Isabel, Leila, White Aster, Admiration, Dora, Guiding Star, Lady Blanche and Whisper.

Cactus and Decorative.—More than thirty kinds were exhibited, but only the following were found in two or more stands. Mrs. Hawkins, Empress of India, Amphion, Charming Bride, Constance, Juarezii, Panthea, Lady Marsham, Cochineal, William Rayner, Annie Harvey, Beauty of Brentwood, Henry Patrick and Mrs. Tait. Single.—Nearly forty varieties were shown in the different stands, but only ten were represented by more than a single flower—namely, Amos Perry, Formosa, Miss Henshaw, Sunningdale White, Enchantment, Hugo, Marion Hood, Sunningdale Yellow, Victory, and White Queen.

It will thus be seen that the Cactus and Single Dahlias are as yet scarcely ripe for tabulation. With more classes devoted to them in the schedule, and stronger competition, somewhat better results may be hoped for another year.—E. M., *Berkhamstead*.



VANDAS.

PLANTS in a sickly condition can soon be detected by the yellow appearance of their foliage, which may have resulted from too much water and a soddened condition of the soil about their roots. The sooner plants in an unsatisfactory state receive attention the better. The most certain method of restoring them is to wash from their roots all decaying matter in tepid water, and then cut away dead and decaying roots and suspend them in a warm moist atmosphere from the roof in a sloping position, so that water from the syringe will not lodge in the axils of their leaves. When subjected to this treatment it is necessary to syringe the plants once or twice daily, according to the weather. When they commence the formation of new roots the plants may be placed in pots or baskets, whichever are most convenient and most likely to meet the requirements of the cultivators. Another plan, and an excellent one, is to return them to pots after the roots have been washed and trimmed. The pot should be drained in the usual way, half full, and the remaining space to within an inch of the rim filled with large pieces of crock and charcoal. This will steady the plant, and keep it in position until new roots commence forming. It will be necessary to syringe the pot occasionally, or pour tepid water into it to keep moisture about the plant. Unless the plants are in an unsatisfactory condition they will soon emit fresh roots and re-establish themselves. *Aerides* and *Saccolabiums* that are in poor condition may have the same treatment.

POTTING VANDAS, AERIDES AND SACCOLABIUMS.

These may now be top-dressed or repotted as occasion requires. If the plants need larger pots some care is requisite. The old material should be picked out from amongst the roots, and if the plant cannot be lifted out of the old pot it should be carefully broken, as some of the roots will be clinging to its sides. These should not be disturbed, the portions of pot clinging to the roots being placed into the larger pot. The space to within an inch of the rim can be filled with crocks, large pieces at the base, gradually reducing their size until a layer of small pieces can be placed on the top. When the plants are small crocks only are used, but when 8, 10-inch, or larger pots are employed we prefer a fair proportion of charcoal in good sized lumps. If a plant is turned out and the roots are found to cling to the crocks only charcoal is not again

used, the space being filled with crocks. It may here be stated that no peat is used for these plants. We prefer clean living sphagnum. This when cleared of all rubbish should be cut with shears and pressed moderately firm in the pot, slightly raising it above the rim. On the surface should be placed a thin layer of moss that has been selected, consisting of growing portions. This may be encouraged to grow by syringing it gently. Care is needed in doing this, for the moss may be made too wet at this early stage. Inexperienced growers would act wisely in deferring the final surfacing until growth is active and liberal supplies of water are beneficial.

TOP-DRESSING.

Where plants do not need larger pots and the drainage is perfectly clean the whole of the moss in which they have been growing during the past twelve months should be removed. This is important where the moss used is not of the best quality and of a nature to decay quickly, which some of it will do in less than one season. If the moss used has been really good only a thin surfacing will be needed. But when the least sign of decay can be observed it should be removed. Many plants are brought into an unhealthy condition through negligence of these matters. When it is removed supply fresh exactly the same as if the plants were repotted.—ORCHID GROWER.

THE ROTATION OF CROPS.

In the cultivation of the ground, whether it be in the garden or on the farm, it is necessary that proper attention be paid to a regular rotation of crops, this being one of the first and principal features of good management. By a rotation of perennial crops—such as Raspberries, Currants, and Gooseberries—the ground to a certain degree is renewed and rested, or at the least very much improved. The above mentioned need not occupy a certain piece of ground above twelve years, or under three. This, with trenching for the principal autumn crops of Brassicas, will keep the ground in good order, and with no loss of space. In all gardens new plantations should be made annually, which will throw a certain portion of the ground into rotation. All crops for a few years will be found to thrive well on newly turned up maiden soil, but would degenerate in a few years unless supplied with fresh soil. This holds good with “Ex-Farmer,” on page 126, as grasses must eventually give way to other plants if not properly provided for. As far as practicable rotation should be provided for in all gardens, as by keeping all the Brassicas, Legumes, bulbs, and other light crops in separate portions, each to follow in regular succession; not only would it give the garden a better appearance, but to a certain measure would produce the necessary change for their well doing. All plants draw their own peculiar substance from the soil, so that a piece of ground which has nourished one crop may be found sufficient for the well-doing of another of a different kind. A plant may be found in abundance in certain fields or woods for a number of years, but in course of time, unless the soil be replenished, will wholly disappear.

Nothing can relieve the soil more than a regular rotation of crops if carried out judiciously, so that the proper plants may succeed each other. For example, take a quarter of Asparagus, the roots of which are large and have penetrated to a great depth, and which have been in the same place for a number of years, and in consequence have exhausted the soil and ceased to thrive. If instead of replanting with young roots of the same kind the ground be cropped with plants, the roots of which do not run too deep, they will find sufficient nourishment of a different kind from that necessary for the former crop, or absorb that which the roots were too deep to benefit by. Perhaps the general richness of the gardens, by much manure been used for the production of vegetables, more attention has been paid to the courses of cropping on the farm than in the garden, but the same principles are applicable to both. There are, however, many circumstances to prevent its being accomplished in the garden so effectively as in the fields—viz., the smallness of the portions allotted to this object, the number to be produced, and their great similarity to each other.—A.

FRITILLARIA RACEMOSA.

FOR very many years there has been growing in a border under the south-west wall of the Oxford Botanic Garden a clump of modest dimensions of an uncommon *Fritillaria*, named *F. racemosa*, that forms the subject of these notes. Writing from memory renders it difficult to describe accurately the colour of the flowers, but some idea may be formed by stating that the smooth-surfaced petals are of a purple shade of chocolate, splashed or streaked and

spotted with bright green, and surrounded by an irregular margin of yellowish green, which extends to their edges. When these were at their best last season Mr. Baker, the Curator of the garden, obligingly gratified the writer's desire to have a characteristic specimen, from which a drawing has been made and forwarded to the Editor with a view to its identity being determined, and some idea of its distribution in this country ascertained. Concerning its origin but little can be gleaned. There does not appear to be any record of the introduction of this plant into the garden, and very little information can be obtained respecting it. It is, however, certain that for many decades it was confined to the same sheltered spot, in which it can be remembered as growing for a long period before one of the most charming of old garden flowers which bordered on it—the dainty pale-blue Wood Anemone—acquired the name of *A. nemorosa* Robinsoniana; here, seemingly, as though designed to afford the protection of shade or shelter during the stages of maturation, at the rear of it a Mandrake plant, *Mandragora vernalis*, extended to it its ample leaves. Such is the situation in which the *Fritillaria* has flourished. It may be mentioned as of some interest that it is one of the many plants that for generations have been preserved within the imposing old walls of what erst was known as the Oxford Physic Garden, and which in well remembered cases were from thence redistributed after having been for long lost sight of in this country as living specimens.

Evidently *Fritillaries* thrive remarkably well in this garden; the situation for them is as favourable as could be desired, and consequently they produce annually an abundance of flowers. Outside the garden, too, in the meadows through which the rivers Isis and Cherwell flow (the latter of which forms the boundary of the garden on the eastward side), notably in that of Christ Church, within view of the confluence of the two streams, the native chequered *Fritillary* abounds in all its most familiar forms. These curiously shaped flowers with, in many instances, their mosaic-like markings cannot be definitely localised, for they are to be met with over a very wide area. They extend, as is locally well known, up the rivers' sides, and in respect to the principal one to a distance as far as Thames Head, the indisputable source of the river, and of much past controversy therewith. Within easy walking distance of this point there is a field that has been famed for them time out of mind. Owing to their comparatively early period of flowering they are not as well known to the majority of people as many of the indigenous riverside summer flowers, for before the genial weather that contributes so much to the pleasure of those accustomed to resort to the river can invest it with the chiefest charm of its attractiveness the *Fritillary* flowers have vanished. An account of their extensive growth in the Oxford meadows has already appeared in the pages of this Journal, and notwithstanding the enormous quantities that are annually gathered they reappear year after year apparently undiminished. So long as the flowers only are plucked there need be little apprehension of their eventual partial disappearance from the meads in which they now luxuriate, but there is, unhappily, occasion to raise an emphatic word of warning in the presence of the fact that entire plants when in bloom are extensively collected for sale, and these, as may be imagined, when planted regardless of their requirements almost invariably perish. Until quite recently, however, the *Fritillaries* have been chiefly sought for by those possessing a fondness for flowers, whose desires in respect to them would be satisfied in gathering a well-chosen handful, and who would regard them with perhaps as much favour as many expensive exotic blooms from having been afforded some delight in obtaining them. It will be understood as being an entirely different matter fraught with palpable significance when whole fields are denuded of them by itinerant wild-flower gatherers, who in increasing numbers collect them with unrestrained activity for dispatching to various destinations. The most reprehensible practice, however, is that of removing the roots in a wholesale manner, for which the severest censure is justifiable when it is remembered that were it not for the prospect of its continuation the Snake's-head *Fritillary* might be considered as being permanently established in the river meads of the University, where they are, particularly when seen for the first time, of sufficiently striking appearance to excite admiration, as well as to arouse into action the acquisitive propensity that is so essentially human.

Parkinson states, in Chapter iv. of his "*Paradisus Terrestris*" (1629), that "of *Fritillaria*, or the chekered Daffodill, there are halfe a score several sorts, both white and red, both yellow and blacke, which are a wonderfull grace and ornament to a Garden in regard of the checker like spots are in the flowers." Such was his estimation of them when recording "the nature and names of diuers Out-landish flowers, that for their pride, beauty, and earliness, are to be planted in Gardens of pleasure for delight." No particular medicinal virtues appear to have been accredited to the

Fritillaria, for he remarks that "the chiefe or only use thereof is, to be an ornament for the Gardens of the curious lovers of these delights and to be worn of them abroad." Of the more than forty kinds at present known he describes twelve, and of these he illustrated eight, observing of the native *F. Meleagris* that it "beareth two flowers, and seldom three." This species derived its name, as implied, from the appearance of the flower resembling the markings of the feathers of the guinea hen, and according to Parkinson "was brought to our knowledge from Orleance" under the name of *Narcissus Caparonius*, given to it in compliment to Noel Caperon, who first discovered it, and who was, "after the finding thereof, taken away in the Massacre in France, recalling a period of one of the most heartless fanatical persecutions and horrible sacrifice of human lives ever sanctioned or perpetrated in the name of religion."

A *Fritillaria racemosa* is figured in the "*Botanical Magazine*,"



FIG. 29.—FRITILLARIA RACEMOSA.

vol. xxx., t. 1216, from a specimen bearing only two small flowers, and this is said to be the one frequently mentioned by Pallas in his travels under the specific name of *Meleagris*, for which he mistook it. Under the same name a plant is figured in the "*Botanical Magazine*," vol. xxiv., t. 952, having four blossoms, stated as being "evidently the plant from which Linnæus characterised his *pyrenaica*." The figure in the "*Magazine*" undoubtedly represents different forms to that of the Oxford Botanic Garden. In passing it may be of interest to note, in confirmation of the admitted absence of any particular medicinal virtues of *Fritillarias*, in "*Stirpium Icones Chabræi*" (1666) the author, an M.D., wrote, "*Fritillariæ autem vsus Medicus nullus*." It will be observed that this work was published at Geneva the same year as that in which the Fire of London raged so terribly. In the second volume of Rudbeck's "*Campi Elysii*" (1701) thirteen species and varieties are figured. One of these, *F. polyanthos flavo-viridis*, resembles the Oxford one in point of shape more nearly than any other as yet met with, but the presence of the tessellated markings serves to terminate the comparison. In referring to this admirable work one cannot but be moved by feelings that are not easily expressed, for it furnishes a sorrowful incident in the annals of scientific research. It was the joint undertaking of Olaus Rudbeck and his son, both of whom in turn were professors of botany at

Upsal, and "it was one of the greatest undertakings of the kind" consisting of a collection of fine woodcuts of all the plants then known." These were to be arranged in twelve large folio volumes, but the second one had scarcely passed from the printer's hands when the work, together with many thousand wood engravings, intended for future volumes, were destroyed by a fire that laid almost the whole of Upsal in ashes. Grief for their loss is supposed to have occasioned the death of the elder Rudbeck in the same year. All that remains of this work are three copies of the first and six of the second volumes, one of each enriches the library of the Oxford Botanic Garden. — JOHN E. JEFFERIES, *Oxford*.

THE BULB MITE.

ALTHOUGH this troublesome pest is usually called the Eucharis mite, I think its name might be of a more general character, corresponding with its attacks. Various remedies have been advocated for its destruction, but I find nothing so effectual as watering with lime water. I quite agree with Mr. W. Simpson (page 558, last vol.) that it appears before decay takes place. The gravelly soil here is full of the mite. No matter which side of the estate I get it for potting purposes, it is there, ready to fasten on to the roots of any plants that are placed in it. Heat and moisture seem favourable for its development, consequently plants requiring much water are liable to suffer most. Lime water will cause the excrescence to decay that forms on the roots of Cucumbers, Melons, Tomatoes, Dwarf Beans, &c., without any apparent injury to the plants.

I had no idea till lately that this insect would injure hardwooded plants, but such I think is the case, as I have found evidence of it on Roses in the open, and on fruit trees. I am of opinion that it has something to do with the wart on the Vine. I had a lot of pot Vines started in the spring of last year that had been grown from eyes the previous season. They started strongly, and had grown about 18 inches to 2 feet, when I had them shifted into larger pots, using turfy loam and a little bone meal. In about a fortnight warts appeared, and the Vines stopped growing, or nearly so. Wondering whether my old enemy had anything to do with it, I examined the roots, and found the tissue eaten away, which made me conclude it was the mite. I at once applied my usual remedy, lime water, and the Vines partially recovered, but did not make such good canes as I had hoped to see.—T. E.



EVENTS OF THE WEEK.—The spring Show of the Richmond (Surrey) Horticultural Society will be held on Tuesday, March 18th, and the following day. The Croydon Gardeners' and Amateurs' Mutual Improvement Society will hold a meeting at 8 P.M. on the 18th inst., when a paper on "Hybridisation in Plants," by Mr. L. Castle will be read. The Royal Society meets to-day (Thursday) at 8 P.M., and the Society of Arts on Wednesday, March 19th, at 8 P.M.

— WE understand that good progress is being made with Baron Schröder's scheme for the establishment of a HORTICULTURAL HALL in LONDON. Donations of £1000 each are promised by Lord Revelstoke, Lord Rothschild, and Mr. Hambro, the new member of the Royal Horticultural Society's Council. The total amount already promised is nearly £7000, and we may expect that this sum will be rapidly increased as the merits of the scheme are made more widely known.

— THE BRITISH FRUIT GROWERS' ASSOCIATION held a Committee meeting in the Horticultural Club-room on Thursday, March 6th, at 5 P.M., Mr. T. F. Rivers in the chair, and amongst others present were Dr. Masters, Mr. Faunce de Laune, Mr. Bunyard, Mr. Wells Ingram, Mr. Goldsmith, Mr. Cummins, Mr. Butts, Mr. Gordon, Mr. Beach, Mr. Roupell, and the Honorary Secretary. The principal business was the election of local secretaries to represent the Association. Thirty members were thus appointed in Scotland, Ireland, Wales, and the following counties:—Hereford, Warwick, Worcester, Kent, Gloucester, Leicester, Sussex, Surrey, Essex, Middlesex, Cambridge, Somerset, Notts, Hants, York, Herts, Devon, Norfolk, Lancashire, and Shropshire. Arrangements were also made for a series of lectures in the North of England in response to inquiries. Affiliation with the Royal Horticultural and other societies was resolved upon, and other miscellaneous business was transacted.

— WILDSMITH MEMORIAL FUND.—We are pleased to receive a list of contributions to the Fund amounting to upwards of £40. W. J. Palmer, Esq., M.P. Messrs. Sutton & Sons, and Messrs. J. Veitch and Sons each contribute 5 guineas; the Hon. Emma L. Shaw Lefebvre £5; G. F. Wilson and Arthur Sutton, Esqs., each a guinea; while Miss Potts, Miss Markhy, and Messrs. W. Binder, H. J. Clayton, W. Coleman, W. Crump, A. Dean, W. C. Davis, S. Kerry, A. Maxim, W. A. Searing, T. Turton, P. C. M. Veitch, and Messrs. Wood & Sons contribute various amounts. Mr. T. Turton, Maiden Erlegh Gardens, Reading, is the Honorary Secretary, and Mr. A. W. Sutton, Reading, and Mr. H. J. Veitch, Chelsea, the Honorary Treasurers of the Fund.

— THE WEATHER IN THE SOUTH has on several days during the past week been quite warm and springlike, with some rain, but on Sunday snow and hail fell at intervals, though the day generally was fine. Tuesday was exceptionally clear and warm, a great contrast with the previous week.

— THE WEATHER IN THE NORTH.—Changeable weather has marked the past week—3rd to the 10th inst. In the first two or three days high cold west winds prevailed. The 8th (Saturday) was an exceedingly unpleasant day, heavy sleety showers falling during the day and evening. During that night 9½° of frost were registered, followed by thaw and rain in the evening, and this morning (10th) at 10 A.M. the thermometer shows 45°. Heavy snow has fallen in the northern counties.—B. D. *March 10th, 1890.*

— CANKERED TREES.—A correspondent, "H. P.," desires to ask "G. C., *Warwick*" (page 202), to give the list of trees not fruit trees which he has found cankered. There is no doubt that there are several indigenous trees afflicted with the malady.

— WE are requested to draw attention to the sale of NEVILL COURT, which is advertised. Nevill Court is described as one of the finest residential estates in the Tunbridge Wells district, and the sale as an important one to horticulturists.

— ROYAL BOTANIC SOCIETY OF LONDON.—At a meeting of this Society, held last Saturday, Mr. J. Travers Smith in the chair, it was reported that included in the donations was a very interesting collection of seeds of economic and food plants, timber trees, &c., of Uruguay, presented by Consul Alex. K. Mackinnon. On the table were plants in flower of *Narcissus poeticus*, lately received from China, and several varieties of the same flower from the Scilly Isles, illustrating the cosmopolitan nature of this family of plants, which appears as happily at home in our native British fields and gardens as in China—in fact, in the Scilly Isles *Narcissi* are grown by the acre, and over ten tons of the flowers sent off weekly to market.

— ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst., at 7 P.M., the following papers will be read:—"A Brief Notice Respecting Photography in Relation in Meteorological Work," by G. M. Whipple, B.Sc., F.R.Met.Soc. "Application of Photography to Meteorological Phenomena," by William Marriott, F.R.Met.Soc. These papers will be illustrated with lantern slides. After the reading of these papers the meeting will be adjourned, in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of instruments illustrating the application of photography to meteorology, and of such new instruments as have been invented and first constructed since the last exhibition. The exhibition will be open on Tuesday evening, the 18th inst., and remain open till Friday, the 21st inst.

— THE BELFAST GARDENERS' SOCIETY.—We have received the rules of this Society, which has been referred to as affording assistance to gardeners when out of situations. The conditions of membership are the payment of a fee of 2s. 6d. and 1s. a month afterwards. On the expiration of twenty-four months members out of situations are entitled to 10s. per week for eight weeks, and cannot, except by the decision of a specially summoned meeting, receive any further benefit for a period of two years. A six-years membership without interruption entitles the wife or family of each member to £6 at his death. The Society is registered under the Friendly Societies Act, and we are informed is in a flourishing condition, but we have no information respecting the number of its members nor the state of the finances, neither do we find the name and address of the Secretary appended to the rules. The meetings are stated to be held on the evening of the first Wednesday of each month in the Forsters' Hall, 44, Royal Avenue, Belfast.

— **HAARLEM BULB SHOW.**—The Quinquennial Exhibition of Hyacinths, Tulips, Narcissi, Armaryllis, and other bulbous and tuberous rooted plants will be open at Haarlem, Holland, on the 21st inst. and continued for five days.

— We are informed that MESSRS. SUTTON & SONS, READING, have adopted the electric light on a portion of their premises. Between fifty and sixty lamps have been in use for the past fortnight, and have been found satisfactory.

— **WAKEFIELD PAXTON SOCIETY.**—Rev. F. D. Horner is announced to read a paper before the members of the above Society on the 29th inst., entitled, an "Amateur's Experience with Orchids." It will, we suspect, attract a large attendance of members.

— **GARDENING APPOINTMENTS.**—Mr. Richard Morse, late of Clevedon Hall Gardens, has been appointed head gardener to D. A. Thomas, Esq., M.P., Llanwern Park, Newport, Mon. Mr. John Alex. Mercer, foreman at Childwall Hall, near Liverpool, has been appointed head gardener to Mrs. Kemp, Beechwood, Rochdale.

— **ECCLES AND DISTRICT CHRYSANTHEMUM SOCIETY.**—I beg to inform you that the Committee of the above Society has decided to hold their annual Chrysanthemum Show this year on November 14th and 15th at the Town Hall, Eccles, and I should be much obliged if you would bring this to the notice of your readers in the text of your valued paper.—H. HUBER, *Hon. Secretary.*

— **THE NEW ZEALAND INTERNATIONAL EXHIBITION.**—A newspaper report of the exhibits of Messrs. Sutton & Sons has been sent to us, but as our pages are full to overflowing we can only say that a show case of the firm containing their products is described the "most handsome in the Exhibition," and that the firm "secured seven of the highest prize medals at the Adelaide and seven highest awards at the Melbourne Exhibition."

— **THE WEATHER IN SUSSEX.**—March brought us in Mid-Sussex very wintry weather. There were 3 inches of snow on the morning of the 1st. A bitter N.E. wind prevailed, bringing showers of snow at intervals up till Monday morning at 8 A.M., when the snow was quite 8 inches deep. On Monday and Tuesday the sun was quite hot, but it seemed to have as little effect on the snow as a December sun. Thermometer readings:—Morning of 1st, 22°; 2nd, 24°; 3rd, 18°; 4th, 13°.—R. INGLIS.

— **EARLY RHUBARB.**—The Rev. W. H. Sewell writes from Yaxley, Suffolk:—"I shall be happy to show any of your readers my dwarf Rhubarb, wholly unforced, as it is now growing in the open in my garden, requesting only a letter or postcard making an appointment, any day but Sunday. As the winter was so mild, the Rhubarb this year was somewhat later than usual, St. Valentine's Day. The first good gathering was on February 22nd. Since then it has been, and is, being pulled as required. Should this note fall under the eye of any of the persons to whom, last autumn, I supplied roots, I should like again to urge them (even professional gardeners) to please to follow the cultural directions sent, which an experience of several years has proved to be important."

— **SPRING SHOW AT WESTMINSTER.**—The first of the series of Shows announced to be held in the Royal Aquarium, Westminster, was opened on Wednesday last, March 12th, and proved to be most successful both in number and quality of exhibits. We regret that this week we can only give a cursory review of the character of one of the best spring Shows yet held at so early a date in the season. Classes with liberal prizes were provided for bulbs, forced plants, Daffodils, Cyclamens, Primroses, besides miscellaneous groups of plants, and the entries were numerous. The plants were tastefully and effectively arranged by the Superintendent Mr. W. Holmes, who may be congratulated on the results of the first of the Shows under his management. Some of the principal exhibitors were Messrs. J. Laing & Sons, H. Williams & Sons, T. S. Ware, J. Turk, W. Clarke, Barr & Son, Collins Bros. & Gabriel, D. Phillips, J. Odell, C. Nunn, B. S. Williams & Son, J. Cheal & Son, and R. Dean.

— ON the 5th instant thirty of the foremen and clerks of the firm of MESSRS. RICHARD SMITH & Co., ST. JOHN'S NURSERIES, WORCESTER, were entertained at dinner by Mr. Smith Carington, the senior partner, in commemoration of his mayoralty of the Faithful City this year. The company sat down to an excellent repast, and after doing ample justice to a liberal bill of fare the rest of the evening was spent in speech making, songs and music. The healths of His Worship

and of Mr. R. C. S. Carington, the managing partner of the firm, were proposed in eulogistic terms, and suitably responded to by both gentlemen. Altogether a most enjoyable evening was spent, the company separating at 11 o'clock with hearty good wishes for the continued prosperity of the firm. We are always glad to hear of these pleasant reunions, which tend to strengthen the bonds of sympathy between employer and employed.

— **A GREAT HORTICULTURAL EXHIBITION** will be held in the Pavillion de la Ville, Champs Elysées, Paris, in May, opening on the 21st and closing on the 26th. It is intended to be a general exhibition of the products of horticulture, and of objects of art and industry employed in gardening or serving in the decoration of parks and gardens. The classes number upwards of 200, and embrace new plants, stove, greenhouse, and hardy plants, Ferns, Palms, Orchids, cut flowers, fruit, vegetables, and garden implements, amongst others. Prizes of honour, gold, silver-gilt, silver and bronze medals will be awarded. The Exhibition will be under the auspices of the French National Horticultural Society, and inquiries must be addressed to the President of the Society, Rue de Grenelle, 84, Paris, before Thursday, May 15th. Exhibits will be received from the fifth to the second day before the opening, not later, except in the case of cut flowers, which will be received up to 7 A.M. on the morning of the Show.

— **NICOTIANA AFFINIS FOR CONSERVATORY AND DRAWING-ROOM DECORATION.**—I notice in the *Journal of Horticulture*, March 6th, page 197 that Mr. Murphy highly commends the above-named, and rightly too, for I find it invaluable. I have grown it for several years, and we are seldom without plants in flower; indeed, I have received orders to try and keep it in bloom always. I cannot recollect having a break for eighteen months. Seed is cheap, and it is so easily raised that I do not find it difficult to keep a supply of young plants, and it will grow as freely from the root as from seed; broken up every little piece will grow and form a plant if put in a pan and placed in a propagating frame. It is useless to keep old plants after the first time of flowering. Young plants grow quickly, and produce much finer blooms. They will grow in almost any soil, but they pay well for liberal treatment. Loam, leaf soil, and manure in equal parts with the addition of a little sand suits them admirably, and they are benefited if liquid manure can be given when the pots are full of roots. They are water-loving plants, as they like plenty at the roots and over the foliage in hot weather. The best results are obtained from plants potted from time to time until they are in 8 or 10-inch pots. The cultivators will then have good plants self-supporting, with stout flowering shoots from the axils of every leaf, and foliage completely overing the pots.—W. SPENCER, *Southport.*

— **AMERICAN APPLES.**—Apples command high prices. Hard Maine Baldwins are worth 3 dollars 75 cents, to 4 dollars per barrel, and other New England Baldwins command 2 dollars 50 cents, to 3 dollars 50 cents. There is a feeling among some of the trade that prices are almost too high. The buyers of Apples to sell again complain that there is no margin in handling them. Nevertheless, the country is very firm on the few that are not picked up. The request for export is only fair, prices being too high for a liberal movement through that channel. In New York lighter arrivals and a fair demand have combined to make a firmer market. Sales have been mainly in the range of our market quotations, but here and there an exceptionally fancy lot of Greening or Baldwin is placed a little above outside figures. The export of Apples from all American ports for the week ending February 19th, as reported by A. C. Lombard's Sons, were 18,594 barrels, including 1,336 barrels from Boston, 2,838 barrels from New York, 7,420 barrels from Portland, and 7,000 barrels from Annapolis. For the season the total exports have been 637,481 barrels, including 131,186 barrels from Boston, 133,505 barrels from New York, 162,526 from Montreal, 103,324 barrels from Portland, 44,930 barrels from Halifax, 37,010 barrels from Annapolis. For the same time last year the total exports were 1,209,548 barrels, including 351,840 from Boston, 411,082 from Montreal, 84,771 from Portland, 70,160 from Halifax. Boston's week's shipments were 1,330 barrels to Liverpool. Of the week's foreign export of Apples, 11,096 went to Liverpool, 415 to Glasgow, and 7,983 to London.—(*American Cultivator.*)

— IN the "BOTANICAL MAGAZINE" FOR MARCH the plants figured are as follows:—*Zamia Wallisi* (t. 7103) is "one of the three new species discovered in 1873 by Gustav Wallis when in the employment of Messrs. Veitch as collector in New Grenada." The leaves are 2 to 3 feet high, with two to eight pairs of leaflets, specimens of the

latter, 17 to 20 inches long, and 4 to 10½ inches wide, being preserved. *Satyrium membranaceum* is a South African Orchid related to *S. carneum*, and found in "the same kind of wet sandy dunes near Cape Town." The flowers are bright rosy red, much like those of *S. carneum* roseum figured in this Journal. *Arisæma Wrayi* (t. 7105) is a tropical Aroid found "in Perak, where it was discovered by Mr. L. Wray." The spathe is pale green, with a long narrow drooping spadix, the leaves are pedate, with five to nine narrow divisions. *Lathræa clandestina* is one of the remarkable Toothworts found in the west and south of France, in Spain, Belgium, and Italy. "A plant was presented to Kew by Dr. Schumann in May, 1888, and was planted by the roots of a Willow near the piece of water opposite the museum No. 1, and flowered in April 1889." The flowers are pale purple with a darker lower lip. *Papaver rupifragum* var. *atlanticum* (t. 7107) is a native of Morocco discovered by Mr. Ball and Sir Joseph Hooker at an elevation of 6000 to 7000 feet in the Greater Atlas south of the city of Morocco, growing in dry rocky places. It is a perennial, and bears large bright orange red or scarlet flowers.

— EMIGRATION OF GARDENERS.—Perhaps it may interest Mr A. Outram to learn that the gardener who sailed on January 4th in the "Wyoming" for America arrived "four days overdue." "We experienced," writes our prompter of the notes that you, Mr. Editor, have found a place for in the *Journal of Horticulture*, "very severe weather, and for about four hours the waves were so high we expected to go down. We lost three boats, one of which was stove in, breaking it into match-wood; the other two were lifted clean away. One sailor was washed overboard, but was recovered. I landed on 18th January at Castle Gardens, New York. Not many passengers; five not having money or friends, will be sent back, and an elderly man was taken by a detective just as he was leaving the boat, being wanted in London. The weather is very mild for the time of year." The above under date of January 20th. Writing again from Holmsburg, Philadelphia, G.A., U.S.A., February 10th, "I have been to all florists worth working for. They promised work as soon as the weather permitted, but sorry they had no opening at present. They also told me that there was an unusual number of good men out this year, and advised me not to depend too much on the florist. So being disappointed for once, and as you are aware my funds are only small, I have taken advantage of the St. George's Society, of which I am a member. They take all poor members in during the winter months, finding them sleeping apartments and plenty to eat." This is given for the perusal of "B.," who will see that what he proposes is done in America, and is a success. Continuing our extract, "Usually in January there is plenty of ice cutting, which lasts six weeks, and passes over the worst part of the winter. None had yet. This will be felt very much in the summer, as everybody uses ice, but the prophets say there will be plenty, and you know the Yankee is great on weather predictions. Everything here is very forward; grass long enough to cut with a machine, most trees ready to burst, Roses with shoots 2 inches long, more like the middle of April. The papers give it out as the mildest winter for over 125 years. Farmers are already going crazy owing to the earliness of crops. They say if wintry weather does come they will be ruined."—UTILITARIAN.

— THE annual meeting of the members of the TWICKENHAM HORTICULTURAL SOCIETY was held recently in the Town Hall, the Rev. D. Anderson presiding. The Hon. Sec. announced that the Sub-Committee appointed to consider the question of the advisability of amalgamating with the Teddington Society had conferred with the Sub-Committee of that Society. A report was made to the General Committee at Teddington, and after considerable discussion it was resolved that the time had not arrived when the amalgamation of the two Societies would be desirable. In the twenty-first annual report, which was read by Mr. J. G. G. Pugh, the Hon. Sec., the Committee tendered their best thanks to the subscribers and exhibitors for their co-operation and support. The report stated that it was matter for regret that the summer Show did not pay financially, and last year a deficit of £32 15s. occurred, this, however, being reduced by donations amounting to £10 16s. 6d. It would be the duty of the Committee to reduce the prizes in the schedule for the forthcoming summer Show in such a manner as would meet the altered circumstances of the subscription list. The autumn Show still increased in popularity, and out of 260 entries upwards of 100 were those of cottagers. The receipts of the Show were £101 19s., and the profit of £11 9s. 1d. went in reduction of the deficit on the summer Show. In conclusion the Committee thanked Mr. J. S. Nicholson for the use of Poulett Lodge for the summer Show, Lady Freake for the use of the Town Hall in the autumn, and all

those who had assisted during the year. An addition to the rules to the effect that all objections should be made in writing to the Secretary before four o'clock on the day of the Show was carried. Mr. Bates proposed that eight tickets only be given to each subscriber, except on application to the Secretary, and in support of his motion he stated that in many cases one subscriber received sixteen tickets, which was ridiculous in his opinion. The Secretary stated that under the present system 1200 tickets were issued, thirty-two being sent to one subscriber in one case; that the adoption of the proposition would lessen the expenses, and would no doubt benefit the Society. The motion was agreed to. Mr. Pugh was re-elected Hon. Sec., Mr. Roe Treasurer, and Messrs. Duncan and Bates Auditors, votes of thanks being accorded to each for past services. The Committee was then re-elected, Messrs. Bruckhause, Walde, Sage, and Mitchell being elected to fill vacancies. It was decided to hold the summer Show on July 2nd.

— THE *Kew Bulletin* for March contains chapters on the origin and production of "Indian Yellow," "The Commercial Value of Ioxa Bark" (*Cinchona officinalis*), and "Barilla" (*Halogeton sativus*). Respecting the last named much interesting information is given, and we extract the following, by Mr. Jasper W. Cumming, Vice-Consul, Alicante:—

— REPORT ON THE BARILLA INDUSTRY (*Salsola* or *Halogeton sativus*).—"Since the development of the manufacture of soda salts by purely chemical processes, the Barilla industry in this province has become very reduced, although not completely obsolete, the plant being still cultivated to a certain extent. It is very difficult to ascertain the quantity of Barilla manufactured, but I am informed that from 200 to 250 tons may be considered an average yearly production. Value varies greatly according to abundance and demand, and may be roughly quoted from 2 dols. to 2½ dols. per quintal or 50 kilos. As to the cultivation of the plant, the seed is sown in January and February in the same manner as other ordinary seeds, and requires no special care. The seed becomes worthless if not sown the season following its collection. The plant is gathered in August. It is pulled up by the root, spread for two or three days, and then collected in small conical shaped piles of two or three quintals each, so that in case of rain the water may not penetrate so much into the interior and rot the plant. It is left thus about a month to thoroughly dry. If not then required to be burnt it is stacked and covered with esparto or rush to preserve it. The manufacture of Barilla is carried out as follows:—A hole is dug out in the form of a large round earthenware pot, about 1½ foot in diameter at the mouth, about 4 feet at the bottom, and depth about 3½ feet, the inner part of which is well beaten, and then covered with a slight smooth coating of mud. A small quantity of wood is then burnt to ashes in this hole to dry and heat it, when it is cleaned out and a couple of iron rods or bars are placed across the mouth, over which bars a quantity of the plant is placed and fired, more being added continually as it is consumed for about twelve hours. Then the bars are removed by means of a large, bent, two-prodded, wooden fork, the boiling substance in the hole is thoroughly stirred, till it becomes even and smooth on surface like molten lead; then the bars are replaced, and the same operation repeated until the hole is filled, when the entire mass is finally stirred as described. The mouth of the hole is then closed up, and the Barilla is left about a week to cool thoroughly, during which time it hardens and cracks into pieces. The hole has then merely to be dug around and the Barilla taken out."

TREATMENT OF MANURES.

IF Mr. Tonks, on page 192, considers my remarks on page 172 "rancorous," he is free to indulge in such epithets, but I prefer to discuss matters on which differences of opinion exist in a spirit of impartiality. I have carefully gathered all the evidence I can, and this supplemented by my own experience, I intend placing under the heading of "Artificial Manures; their Uses and Abuses." This, I hope, will give Mr. Tonks sufficient food to digest and subject matter for criticism, as some facts therein may be antagonistic to his ideas. The subject will embrace the natures of soils, their origin, constituents, and deficiencies; the crops they will suit or not suit, and how they can be made suitable to any crop; the various manures, artificial or natural, that ought to be applied, the effect and the various reactions that take place upon their application to the soil and upon crops or plants; therefore I will not discuss Mr. Tonks' letter as I would otherwise have done. I was only struck by the manufacturer utilising his farmyard manure because of the great expense of the application of 10 tons of it, if a cwt. of properly prepared artificial mixture would have supplied all that was necessary.

Knowing that there are persons still ignorant enough to believe that the canker and all other diseases affecting tree life is caused by the

bark being punctured by some insect, it is not surprising to see others still believe in the blight being caused by dull foggy weather. I do not belong to those, but knowing that foggy weather is favourable to their increase, I have avoided calling those ignorant who did not take the trouble to find out the origin of the American blight. My knowledge as to various diseases being caused by artificial mixtures do not come from such vagaries, but until Mr. Tonks is able to give the origin of the various fungi I do not consider he is justified in placing my opinion at a discount. The Potato and Hop diseases having followed in the rear of the artificial manure era, justifies anyone in considering the connection. I am prepared to hear soon of the creation of Chrysanthemum

At the Chrysanthemum centenary celebration, held by the Royal Horticultural Society at Chiswick on November 5th last year, a few other plants of interest were exhibited, and among them was *Vriesia Marie*, a hybrid from M. Truffaut of Versailles. The plant is depicted in fig. 30, which shows its characters well, the scape, bracts, and flowers being bright red and greenish yellow, spotted with reddish brown. Like the other *Vriesias*, it is easily grown, but requires a warm house and plenty of moisture, both in the atmosphere and at the roots.



FIG. 30.—*VRIESIA MARIE*.

disease; the damping of the blooms has already been attributed to artificial manures. Mr. Tonks mistakes me if he thinks I include pure Peruvian guano under that heading, for it is a natural manure, though there is greater danger in its application than in the use of stable manure.—G. A. BISHOP.

VRIESIA MARIE.

BROMELIACEOUS plants are not such general favourites in England as they are on the Continent, and few nurseries here contain a collection, or even a few species, while in France and Belgium the majority include a large representative number of the most attractive forms. Some attention has also been paid to hybridising them, and from time to time we hear of fresh additions being made in this way, but seldom see them except in botanic gardens. The Kew collection is especially rich in species and varieties, many having been added from the great collection formed at Liège by the late Professor Morren.

PLANTING FOR EFFECT.

MUCH may be done in the grounds attached to the majority of country mansions to render them more interesting and picturesque than they are at present at a trifling expenditure. Pleasant surprises should be experienced in every nook and turning of the grounds and carriage drives, and the wilder and more natural they are in appearance in certain parts the better will be the effect. In the construction of hardy ferneries, undulated and rugged surfaces and irregular outlines should be observed. Rough stones, burrs from the brick-kilns, clinkers, roots, butts, and gnarly portions of trees, together with any old figures that may be at hand, are the most suitable materials. When the logs and butts of trees, with the roots sticking upwards, are placed in position, the intervening spaces should be partly filled with light soil before placing the stones, burrs, and clinkers irregularly over the surface, afterwards partly filling the interstices with soil. Leaf mould liberally intermixed with ordinary garden soil will suit the require-

ments of the majority of the Ferns. Any time within the next six weeks or so will be suitable for lifting and transplanting Ferns. In planting make the soil firm about the roots, and then give sufficient water to settle it down. A knowledge of the characters of the British Ferns will greatly assist in their proper disposition when planting. After the Ferns are planted sufficient Ground Ivy and Periwinkles should be set to cover the bare roots and stones after the Fern fronds have died down during the winter and early spring months.

Old bare-stemmed trees, which are situate within view of frequented walks and drives, instead of being cut down may be rendered objects of beauty by clothing them with healthy flowering shoots of Evergreen Honeysuckle, Virginian Creepers, and blue and white Clematis, depending therefrom in wild profusion.

Tripods consisting of young trees thinned out of plantations of Fir with the branches cut off at irregular distances of 5, 7 to 15 inches from the main stem, fixed here and there in isolated patches of greensward, may be covered with such Roses as the white and yellow Banksian, Donna Maria, pure white; Felicité Perpetue, creamy white; Banksiaefolia, white and buff; Princess Louise, light pink; Alice Gray, creamy bluish; and Queen of the Belgians, pure white, cupped and double. Thus furnished, with the flowering shoots tied quite loosely to the horns of the Fir poles, floral objects, lending variety and charm to their surroundings, are secured. Masses of the Japanese Rosa rugosa planted near to walks and drives are, by reason of its luxuriant and handsome foliage and single flowers, which are succeeded annually by a profusion of large bright reds heps, very effective, as also are similarly planted masses of Bramble. Rubus laciniatus is suitable for this purpose. Patches of the single and double flowered Furze are also telling. Standard Rhododendrons of R. guttatum and other good light varieties carpeted with the pink flowered and fragrant Daphne Cneorum are strikingly beautiful, the peaty soil in which the Rhododendrons delight being equally congenial to the requirements of this trailing and free-flowering Daphne.

In the laying out of pleasure grounds due provision should be made for planting numbers of the several beautiful species of coniferous ornamental trees and shrubs, including a large per-centum of flowering varieties, both as specimens and groups. A few plants of the Florida Allspice (*Calycanthus floridus*), Chimonanthus fragrans, Lilac, Philadelphus (commonly called "Mock Orange" and Syringa), Skimmia japonica, Sweet Briar, together with Wall-flowers and Violets, should be freely planted. Masses of Snowdrops, Primroses, Daffodils, Blue Bells, and Forget-me-nots, should also be planted freely within sight of shrubbery walks and carriage drives. Take advantage of rivers running through the ornamental grounds and park to plant on its banks standard trees of Weeping Birch (*Betula pendula*), Laburnum, Willows (*Salix babylonica* and *S. pendula*), Mountain Ash, and Golden Elder (*Sambucus nigra aurea*). In planting see that the trees do not in any way interfere with the view of objects of interest from any particular standpoint. Work such as referred to in the foregoing general remarks may be done at any time (weather permitting) between October and April, but the sooner it is done before the latter date the better it will be for those transplanted.—H. W. WARD, *Longford Castle, Salisbury.*

NOTES ON FRUIT TREES—APPLES.

(Continued from page 195.)

OF dessert Apples many, though of the highest excellence, are too small for appreciation by the general public, and though some are useful for culinary as well as dessert use, they are not valued in the kitchen, through the skin and core being in relative excess of the flesh in the small fruit as compared with the medium or larger sized fruit. This necessitates keeping two descriptions of fruit—viz., one for dessert and the other for culinary use, which in moderate establishments is more or less inconvenient, and with the general public still more so, as means are not available for investing in both, yet an Apple is liked uncooked as well as cooked. Therefore advantage is gained by having varieties possessing both properties.

DESSERT VARIETIES.

Early.—Irish Peach; medium, yellowish green, tinged reddish brown, brighter on sun side, beautiful, flesh tender, free bearer. August and September. Kerry Pippin; rather small, greenish yellow tinged and streaked red, bright crimson on sun side, flesh firm, a good bearer. September and October. Duchess of Oldenburg; large or medium, greenish yellow, streaked, good bearer. September. Midseason.—Golden Winter Pearmain or King of the Pippins; medium, golden yellow, streaked and mottled crimson, very handsome, flesh firm, free bearer, and certainer than most. October to December. Cox's Orange Pippin; medium, greenish yellow, dark

red on sun side, handsome, flesh tender, free bearer. October to January. Cackle's Pippin, medium; greenish yellow becoming brighter when mature, dotted grey, and somewhat russeted flesh, firm, moderate cropper but certain. December to February. Fearn's Pippin; medium, but often small, greenish yellow, bright dark crimson on sun side, pale streaked on shaded side, very pretty, flesh firm, good cropper. November to February. Golden Reinette; medium, deep yellow, tinged on sun side with red, very handsome, flesh firm, good bearer, but requires a well drained soil and warm situation. November to February. Claygate Pearmain; medium, greenish yellow, striped red on sun side, slightly russeted, flesh firm, free bearer. November to February. Adams' Pearmain; large or medium, greenish yellow, tinged red on sun side, slightly russeted, handsome, good bearer. December and January. Margil; medium or slightly below, orange, streaked red, russeted, flesh firm, good bearer, but not a free grower, and requires a well drained soil and sheltered situation. November to February. Mabbott's Pearmain; medium, orange yellow, streaked red, handsome, flesh rather tender, good bearer. November to February.

Of early autumn varieties, American Mother, medium or above, golden yellow, patched and streaked crimson, russeted, handsome, flesh tender, moderate bearer, October and November, and Melon Apple, large or medium, orange yellow, streaked crimson, handsome, flesh tender, December and January, are American varieties of the first order, which do not succeed on strong loam over clay, but require a silicious loam over sand, or a loam medium or clayey interspersed with calcareous gravel, on sand or gravel, and given shelter they are fine.

Late.—Boston Russet; medium, brownish yellow russet intermixed with green, flesh moderately firm, good bearer, but not a good grower, and though an American variety attains perfection in most soils and situations. January to April. Court Pendt Plat; medium, yellow, deep crimson on sun side, handsome, flesh firm, good bearer but not a strong grower. January to May. Stamford Pippin; medium, greenish yellow, tinged orange on sun side, good bearer, flesh firm but not hard, having a crisp tenderness when ripe. December to March. Golden Russet; medium, brown yellowish russet, and in good examples brown red on sun side, flesh firm but melting, good bearer. December to April. In silicious loams of good depth with sand or gravel under, this variety does well, but in cold heavy soils it does indifferently. In some years I have known the fruit bring 5s. per peck. All russeted Apples require care in keeping; if exposed to light and dryness they shrivel, requiring to be kept cool yet safe from frost, dark and dampish, then the fruit comes out quite plump, and remarkably bright in colour, with a juiciness not found in those kept otherwise. Rhode Island Greening; large or medium, pale green, flesh rather firm but melting, good bearer. November to April. This is another of the American Apples, and good alike for eating or cooking, but it does not succeed in cold heavy soils and exposed situations. In good soils and sheltered positions it is first rate both in cropping and using. Allen's Everlasting; medium, crimson on sun side, pale on shaded, flesh firm, but tender in matured examples. March to May. Scarlet Nonpareil; medium, handsome, good bearer, January to March. I have omitted Ribston Pippin and Lord Burghley, as they are too subject to canker for general culture, and many others are omitted on account of their small fruit. Of those named for dessert purposes some have great value for cooking, and as such are calculated to meet general acceptance. Such are Duchess of Oldenburg, King of the Pippins, Fearn's Pippin, Adams' Pearmain, Stamford Pippin, Rhode Island Greening, and Allen's Everlasting.

Passing on to culinary varieties, we find little to be wished for, indeed, in their respect, we come quite up to the American standard in size.

KITCHEN VARIETIES.

Early.—Keswick Codlin; large or medium, pale yellow, brighter and deeper on one side with a faint blush, flesh soft, free bearer, may be used when large enough, best in August and September. Royal Codlin; large, greenish yellow, flushed red, handsome, flesh tender, good bearer. September and October. Cellini; large or medium, greenish yellow, red streaked and mottled, showy and handsome, flesh tender, capital bearer. October and November. Lord Grosvenor, large, greenish or pale yellow, very fine, flesh tender, free bearer. September and October. Lord Suffield, large, pale yellow, very fine, flesh soft, early and great cropper. August to October. Potts' Seedling; large, greenish yellow, flesh soft, early and great bearer. September and October. Ecklinville Seedling; large, greenish yellow, handsome, flesh soft, good bearer. October and November. Stirling Castle; large or medium, greenish yellow, flesh soft, early and very free cropper. September and October.

Midseason.—Alfriston; large, greenish yellow, tinged orange on sun side, somewhat russeted, flesh firm, moderate bearer. November

to February. Beauty of Kent; large, yellow, red on sun side, flesh tender, good bearer. October to January. Bedfordshire Foundling, large, greenish yellow, tinged orange on sun side, handsome, flesh tender, good bearer in silicious soils. November to February. Betty Geeson; large, greenish yellow flushed on sun side with blush, flesh tender, early and great bearer. November to March. Emperor Alexander; large, greenish yellow, orange, streaked bright red on sun side, noble and beautiful, flesh soft, free bearer. October to December. Golden Noble; large, bright yellow, very handsome, flesh firm, but tender though solid, great cropper. October to December. Grenadier; large, greenish yellow, handsome, flesh tender, good bearer. October and November. Holland-bury; large, yellow, deep red on sun side, a very handsome showy sort, flesh soft moderate cropper. October to December. Hormead's Pearmain; large or medium, greenish yellow, somewhat russety, very handsome, flesh tender, moderate cropper. November to February. Lord Derby; large, greenish yellow, handsome, flesh tender, great cropper. November and December. Nelson Codlin; large, greenish yellow, brighter on sun side, flesh tender, good bearer. October to December. Peasgood's Nonesuch; large, yellow, flushed and streaked red, handsome, flesh soft, free bearing. October and November. Round Winter Nonesuch; large, pale yellow, streaked and spotted crimson, fine and handsome, flesh tender, good bearer. November to December or January. Royal Russet; large, brown russet, reddish on sun side, flesh soft, free bearer. November to March. Unless kept from air and light, and cool and moist, it shrivels and is worthless. Small's Admirable; medium, greenish or lemon yellow, flesh rather firm, free bearer. November and December. The Queen; large, greenish yellow streaked crimson, very handsome, flesh soft. November and December. Loddington; large, green, flushed red, flesh firm, handsome, good bearer. November and December. The Sandringham; large, yellow and shining, striped and flushed red on sun side, very handsome, flesh tender, good bearer in a young state, in which only have I seen it. November to February or March. Castle Major; large, yellow, flushed red, very handsome, flesh tender, moderate cropper. October and November. Tower of Glamis; large, greenish yellow, flushed red, handsome, flesh rather firm, good cropper. November to January. Waltham Abbey Seedling; large, pale yellow, flesh soft, free bearer. October to December. Warner's King; large, greenish yellow, patches and dots of delicate brown russet, imposing in appearance, flesh soft, good bearer. November and December. Welford Park Nonesuch; large, lemon, bright crimson on sun side, streaked darker, handsome, flesh soft, good bearer. October and November. Melrose; large, yellow, tinged orange and crimson, spotted on sun side, handsome, flesh soft. October and November. Greenup's Pippin or Yorkshire Beauty; large, orange yellow, flushed bright red, handsome, flesh tender, great cropper. October and November. Yorkshire Greening; large, green, streaked red, flesh rather firm, good bearer. October to January. I have omitted the Hawthorndens as I find the fruit "pit" badly, and in most instances worthless on that account.

Late.—Annie Elizabeth; large, pale or greenish yellow, spotted and streaked crimson, flesh firm, good cropper. January to April. Bramley's Seedling; large, green, streaked red, flesh firm, strong grower and free bearer. January to March. Dumelow's Seedling; large or medium, pale yellow, pale red on sun side, sometimes bright red, flesh firm, greater bearer. November to March. Flanders Pippin; large or medium, green or greenish yellow, dull red on sun side, streaked, handsome, flesh tender, good cropper. December and January, or later. Galloway Pippin; large or medium, pale yellow, pale red on sun side, handsome, flesh firm, good cropper. November to January. Gooseberry Apple or Pippin; large or medium, green, red next sun, flesh firm, good bearer. November to May. Hambleton Deux Ans; large, greenish yellow and dull red, streaked on sun side, flesh firm, good bearer. January to May. Hanwell Souring; large or medium, greenish yellow, slightly flushed red on sun side, flesh firm, good bearer. December to March. Lane's Prince Albert; large, pale green, flushed and streaked red, flesh tender; a handsome Apple after Cellini type, and a very free bearer. December to March. Minchall Crab; large or medium, yellow, pale crimson in streaks on sun side, flesh firm, good bearer. November to March. Norfolk Beefing; medium, greenish yellow, covered with dull brownish red, flesh firm, good bearer, but does not succeed in cold wet soils. January to May. Northern Greening; medium, green, brownish red on sun side, slightly streaked, flesh firm, good bearer. December to April. Rymer; large or medium, greenish yellow, streaked and flushed red, flesh firm, good cropper. November to March. Some of the kitchen varieties have value for the dessert, alike from noble appearance, juiciness, tenderness of flesh, and briskness of flavour, as Peasgood's Nonesuch, Yorkshire Beauty, Emperor Alexander, Lord Derby, Melrose, Nelson Codlin, Small's Admirable, Hormead's Pearmain, and Hambleton Deux Ans.

Altogether eighty-nine varieties have been briefly described—viz., twenty-three sorts as suitable for kitchen and dessert, of whose quality for both purposes there is no question, and if to those be added the kinds which, though having greatest value as dessert or kitchen varieties—viz., nine of each—the number is brought up to forty-one. We want varieties that are staid, fair and taking in looks, flat and pleasing in quality. Brandy Apple, Golden Knob, and Golden Pippin, delicious as they are, are inadequate to the requirements of boys who make no account of skin and core. Ribston Pippin that cankers its life away, or Hawthornden that pits off its good looks, neither satisfy the old gentleman nor please the cook. No, the colonists of America have shown us that there are wants to be met other than luxurious fancies—indeed fruit must be "a delight to the eyes and good for food"—a combination of ornament with utility, the measure of its appreciation depending on its usefulness and economic value. Variety is not considered in food supplies of Apples. That is most highly prized that offers the most and is enjoyed the longest. Therefore the Americans with not more than half a dozen varieties are able to transport fruit profitably to our markets. Evolution in Apples truly has advanced. 1545 varieties are described in "British Apples" as "presumably distinct," but there has been so little selection that the American Apples represented by the units have given the hundreds their quietus, and scared the home growers "out of their wits."—G. ABBEY.

(To be continued.)



A CHRYSANTHEMUM DINNER.

THE members of the Sheffield and Hallamshire and the Sheffield and West Riding Chrysanthemum Societies, which have now been amalgamated under the title of the Sheffield, Hallamshire, and West Riding United Chrysanthemum Society, held their annual dinner on Thursday evening, March 6th, at the Maunche Hotel, where, after full justice had been done to an ample repast provided by the manager, Mr. W. Ross Cattanagh, the chair was taken by T. B. Hague, Esq.

The Secretary having read letters of apology from the President, Mark Firth, Esq., Archdeacon Blakency, and other patrons, the Chairman proposed the usual patriotic and loyal toasts. Mr. G. S. Stocks then proposed the toast of the evening—"The United Society," and in a neat and very effective speech alluded to the great advantages which would certainly accrue from amalgamation; the jealousy which had existed previously would be now swept away, and professionals and amateurs would now look for one common object—the successful cultivation of the flower, and the success of the annual Exhibition.

Mr. E. D. Smith, in proposing "The Officers of the Society," trusted that as heretofore they would work well and effectively. The Secretary in replying stated that he thought as at present officered failure was out of the question, as everything had been so thoroughly in unison, such unison must tend to ultimately achieve the most thorough success. Mr. Newsham proposed "The President, Vice-President, and Patrons," which was responded to on their behalf by Mr. Collier; the rest of the evening being devoted to harmony, Messrs. Cattanagh, F. Lawton, Edge, Jarvis, Padley, Housley, and others contributing, and a pleasant evening came only too quickly to a close.

The annual Show is fixed for the 14th and 15th of November, and schedules will be ready as early as practicable, due notice of which will be given in the horticultural press.

THE KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.

THE Society named above is entering upon the fifteenth year of its existence, and from the time of its formation its finances have been looked after by one gentleman—Mr. John Drewett—who is known to many as being connected with sundry and divers public institutions in the town. With him was associated nearly twelve years as Honorary Secretary the late Mr. Thomas Jackson; and it is a fact that the Society would have come to an end about five years ago, owing to the financial depression, had they not made up their minds to one more effort, which was attended with success. On the death of Mr. Jackson his colleague wished to be relieved of the duties of the office of Treasurer, but was induced to continue them by the prospect of finding a worthy successor to the late Secretary in the person of Mr. George Woodgate, and by the promise of support from several amateurs, among whom may be mentioned Alderman Sherrard, Messrs. Furze, Douet, F. J. Hayward, and Dr. Walker of Wimbledon. The tide of prosperity now seems to have set again in favour of the Kingston and Surbiton Chrysanthemum Society, for after putting £40 to the reserve fund there is a balance of £23 still in hand.

Out of the feeling that to Mr. J. Drewett was due in a high degree the survival of the Society through most adverse circumstances, came a

desire to testify to him how his past services are valued, and at the request of the Committee Mr. Woodgate made known that wish to some of the oldest supporters of the Society, but no general appeal was made, in order that what was being done should be kept strictly private, as was the case. In a short time subscriptions to the amount of nearly £36 were received, and the presentation decided on consisted of a gold watch, a "Tantalus" stand for the sideboard, and an inscription on vellum. The two articles first named bore inscriptions setting forth why they were given, and on the vellum the same was stated, with the subscribers' names appended. This last, which was mounted and framed, was quite an artistic production, and in the bordering was introduced a faithful representation of the flower which gives its name to the Society under notice. It was designed and executed by Mr. E. Woodhouse, at 37, Market Place, Kingston.

The presentation was made last Saturday evening at the "Kingston Hotel," in the presence of about thirty out of the forty-five subscribers to the testimonial, amongst whom were all the lady patronesses and Sir Whittaker Ellis. The last named had hoped to be present on the occasion, but was not able to compass it. Following the usual custom there was first a sitting around the "board," which was well spread, but not extravagantly, and among the two dozen present at that function were several who assisted at the birth of the Kingston and Surbiton Chrysanthemum Society, and still take an interest in its welfare. G. C. Sherrard, Esq., J.P., the President of the Society, was the Chairman of the evening, and on behalf of the donors he made the presentation most gracefully, and the recipient of the gifts acknowledged them very feelingly.—(*Kingston and Surbiton News.*)

LANDSCAPE GARDENING.

[Read at a meeting of the Cardiff Gardeners' Association by Mr. Kettlewell.]

LANDSCAPE gardening is the highest branch of the art of gardening, inasmuch as the materials with which a landscape gardener works include all the noblest features of the country. It has respect to small plots as well as large and extended tracts of land—from half an acre attached to a villa residence, as well as to 20 or 100 acres attached to a mansion, and reaching out to a large park. It differs from ordinary gardening or forestry, inasmuch as it relates more to the first laying out of the land, to the arrangement and the adaptation of it, so as to set it forth to the best advantage, which the gardener or forester is afterwards to keep in order. Taking the art of landscape gardening generally there seem to me to be three most important features which will make or mar the picture, and it is in these that we discern the talent and taste and ability of the true landscape gardener. These three features are—1, The grouping and arranging of trees or shrubs, whether singly or in masses. 2, The undulating of the ground where necessary. 3, The finishing off of the whole. With reference to the first point—namely, that of the arrangement of shrubs, Mr. Loudon says that "there is one essential difference between the landscape gardener and the landscape artist which should never be lost sight of by the former, and this is that the materials with which he works are always changing, while those of the artist are fixed." Now this is especially the case in planting, as the trees introduced by the landscape gardener vary in height and form year by year, and in colour every season, so that he must know and take into consideration all these changes when he is planting, and even with all due thought and consideration there is yet a degree of uncertainty in Nature's growth. A tree, you will allow, is itself the noblest object of inanimate nature, and trees or shrubs, whether in masses or singly, produce, or help to produce nearly all the grand effects. What care, skill, and knowledge of the habits and in the planting of trees is then required by those who seek to produce a like result in garden scenery; and more than that, by those who seek to prune Nature of some of its roughness, and with the aid of art to add a more polished scenery to the foreground of the picture. Further on I hope to again say a few words in different places on planting.

I now come to the second important feature, that of undulation. The greatest charm of undulation lies in its softness and freedom; the lines should melt away into each other. Angularity, sharpness, or straightness are entirely out of place; correctness of eye, a nice judgment, and considerable taste are therefore required to produce a pleasing and finished result. Undulation, if delicately and cleverly applied, takes away that appearance of stiffness, and want of character and variety, which are often discernible in grounds that have been laid out by unskilled hands. With regard to my third point, that of finish, I refer to the clever and judicious distribution of the various parts of a design, the gradual transition from one point to another without any apparent interruption, the unobtrusive and almost imperceptible blending of one style with another, the perfect levels, the graceful curves of walks where curved, the accurate lines where straight.

I will now divide my paper into three parts, and say a few words

with reference—firstly to the general styles and principles of landscape gardening; secondly, to a few special subjects, embracing flower gardens, Rose gardens, kitchen gardens, water and lakes, rockeries, parks, and lodges; and thirdly, I will give a cursory sketch of the outline of work in laying out a place, and offer a few suggestions as to the practical treatment of walks, drainage, and planting.

There are three principal kinds of style recognised in landscape gardening. 1. The old formal or geometrical style where a garden is treated entirely as a work of art—*e.g.*, the Dutch garden. 2. The mixed, irregular, or gardenesque style, where more agreement with Nature is courted, through the aid of Art is still sought and valued. 3. The picturesque style, the distinctive characteristic of which is extreme naturalness.

The old formal or geometrical style is that which an architect would doubtless prefer, as it subordinates everything to the house, and is an attempt to carry out the principles common to both itself and architecture. Although this style has often been condemned as unnatural and absurd, it should not be looked upon as an attempt to imitate Nature, as a famous writer on the subject has well said, but as a display of the power of Art over Nature, and should therefore be judged like every other work of man by the end in view. It is a style admirably fitted to distinguish the garden scenery of the man of wealth from that of the common fortuitous scenery of the country around, and is utilised for that object. The geometrical style, however, has many inherent beauties of its own, as for instance that of a broad avenue. Who is there with any taste for the beautiful who has not been struck by the beauty and dignity of some of our old English avenues? The distinctive features of the geometrical style of landscape gardening are straight walks or walks branching off at right angles, beds formed in circles, segments of circles, ovals, oblongs, angles, or parallelograms, flights of steps, balustraded walls, terrace hanks, raised platforms, sunken panels, exotic forms of vegetation, symmetry, correspondence of parts and gaiety of tone. The forms of Nature which are the most suitable for this style are those which are the most artificial in appearance, if it may be so expressed, as for instance round-headed standards, upright or fastigate shrubs, *Araucaria imbricata*, Irish Yews, Junipers (species of), *Arbor Vitæ*, Cypress, Cedar of Lebanon, species of *Cytisus* treated as standards, and many others. Purely town gardens can be treated in this style with great effect—that is, with terrace walks, flights of steps, sunken panels, vases filled with flowers and shrubs; but as a rule this style is only suitable for large gardens where the house or mansion is of the Grecian, Roman, or Italian style of architecture. It also is a most costly style, as it requires lawns to be the most perfect levels, grass, beds, and masses to be in the highest state of preservation.

The mixed or gardenesque style, as it has been termed, has as one of its most characteristic features curved or serpentine lines. Smoothness and freedom from angles are among its numerous indications, while the beauty and gracefulness of its lines are its chief object. This, however, does not entirely forbid the use of straight lines, but they must be in connection with the house or some subordinate building, such as a greenhouse or conservatory. It blends and interfuses Art with Nature, prunes Nature of its roughness by means of Art, drawing from each their most appropriate and agreeable elements, the grace of Nature without its ruggedness, the refinement of Art without its stiffness.

The last style in landscape gardening is that which has been named and worthily so too, the picturesque, a style which recognises no kind of symmetry or order, treating, as it does with broken ground, curious and bold forms of vegetation, rushing water, old ruins stained by time and age, and which yet possesses an indescribable wild grace so captivating to the eye.

The mixed style, with a little help from the geometrical and picturesque, is that which is best suited for small gardens, but care should be taken that one style only predominates, the other styles being quietly blended and introduced as subordinate features.

To turn to the general principles, simplicity demands first consideration. A design can be essentially simple without being crude and bald; intricate without being mazy. As simplicity is an element of true beauty, so also is it of the highest taste. A garden should be more or less simple in its arrangements according to its size and position, the lines all graceful, the decorations elegant. Intricacy brings into play a something beyond, a something more to explore, a newness of scenery, brought about by the clever grouping of plants, whether in masses or specimens, thus giving a charming variety of aspect.

Convenience is another principle which should be carefully studied. However tastefully a garden may be laid out it loses all its charm if comfort and convenience have not been provided for. Compact com-

position of the various parts, seclusion, an agreeable transition from one part of the garden to another without any decided break to disturb the harmony of the design are further principles which are always borne in mind by the successful landscape gardener. There is, however, one principle which must always be remembered by designers of a garden, and that is adaptation, for without adaptation no rules, no principles that can be given, will be of any real value. Every plot of land, whether it be half an acre or whether it be a hundred acres, has its own peculiar characteristics which should influence the disposal of its various parts, and give colour and variety to the whole design. It is, in fact, the delicate adaptation of the various rules, styles, and principles of treatment to the peculiarities and existing objects of each place, that brings credit to the landscape gardener and satisfaction to the owner.

(To be continued.)



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY
(Continued from page 203.)

Comtesse Panisse (Nabonnand, 1877).—Of fair growth, with fine foliage; not liable to mildew, and does tolerably as a dwarf; a full Rose, which therefore will not stand any rain and requires a hot bright sun. The petals are stout and good, and I had a fine bloom off my first plant, but have never had so good a one since. Not above the average size, and very changeable in colour. I see it is described in one catalogue as "rosy buff shaded with carmine and violet," which certainly seems sufficiently comprehensive, but amateurs will find that a great many of these Tea Roses come practically white; and the reason of this is, I suppose, that they are described as first seen under glass, but that out of doors they only open properly in bright hot weather, and then the sun "takes the colour out."

Comtesse Riza du Parc (Schwartz, 1876).—Of strong hearty growth, with good foliage, not liable to mildew or much injured by rain, late in blooming, not a good autumnal, and preferring a standard stock. This Rose "comes" very badly indeed, and a good shaped one is a decided rarity. It is not large nor a free bloomer, and has only survived from its colour, which is a charming shade of pink, with an indefinable sensation of yellow pervading it, especially at the base of the petals. It is already dropping out of the catalogue, but a good Rose of its colour would be heartily welcomed.

Devoniensis (Foster, 1838).—Of moderate but sturdy growth, nearly as thorny as *Comtesse de Nadaillac*, with small foliage; not very liable to mildew, nor (as becomes a native of Devon) as impatient of rain as some Teas. The strong blooms often come divided, but it is pretty good in petal, shape, centre, and size, though very liable to injury from frost. For a long time this was the best English-raised Tea Rose, and till lately it was highly rated, but now seems to me to be deteriorating. At all events, one does not see it shown so often as formerly, and I can do no good with it, as it appears to object strongly to being grown as a dwarf. Two catalogues at least describe this Rose as "pale yellow." I cannot tell why compilers fight so shy of the word "white," but they always seem to me to avoid it if they can.

Climbing Devoniensis (Pavitt, 1858).—I have not noticed the climbing sports of the H.P.'s, as they seem to me to be of little practical value, since the blooms are generally inferior to the type, and better pillar and wall Roses are to be found among the Noisettes, Gloire de Dijon, Ayrshire, Evergreen, or Banksias. Some nine or ten are catalogued, and oddly enough they are mostly sports of varieties which have quite a short growth naturally. This Tea Rose, however, "out-herods Herod" in differing from the *Devoniensis* type, which (as we have seen) is of quite moderate growth, but the climbing variety is the strongest, most untidy, and irregular grower we have. Growing is its strong point, and it sometimes nearly omits the flowering part of the business altogether. A strong long shoot of the *Gloire de Dijon* or *Noisette* races, if laid in well and uninjured by frost, will bloom freely all up the rod. But not so *Climbing Devoniensis*. Away it goes again (if well treated on a south wall) from the top bud of last year's shoot, and its sole endeavour seems to be to get to the top of the wall as quickly as possible, and as a plant to look as bare at the base, ugly, and lopsided as it can. The great pithy, thorny, flowerless shoots are very susceptible to frost, and are not handsome at any time. But I have seen it show better manners, growing moderately and blooming freely throughout the summer on a south wall, where no attention was paid to it; and I believe this desirable state of affairs was attained by simple starvation, but the buds were small and only useful as passab'e buttonholes.

Ernest Metz (Guillot, 1888) and *Ethel Brownlow* (Dickson, 1887) will, I hope, prove desirable members of our family, and set a good example in manners in general behaviour; but they are too juvenile as yet to have their characters described.

Etoile de Lyon (Guillot, 1881) is thus described in a catalogue of this season:—"This, without question, is one of the finest Tea Roses ever raised, and one which it will be difficult to supersede. It is a gem in every sense of the word, producing freely large and well formed flowers." Amateurs in general will probably not endorse this. The description, which is exaggerated under any circumstances, was no doubt taken from the Rose as seen under glass. This is necessary in the case of new Roses, but we look for more accurate characters of Roses eight years old. It seems to me a very disappointing Rose out of doors. It does well as a dwarf, and has good stout growth and foliage, rather liable to mildew, but the blooms come generally badly, of confused and queer shapes, and require as a rule very dry warm weather; yet did better, oddly enough, in the cold wet summer of 1888 than many others. It is what I call a disappointing Rose all round; for, when you do get a well shaped and regular bloom from a strong and very stout shoot, it is surprising how small and insignificant it looks when set up beside other Tea Roses cut from much slenderer and weaker stems. This is partly accounted for, no doubt, by the thoroughly globular shape, and by the outer petals being short, and kept close up to the rest of the bloom. Those are always the most effective shapes where the outer petals are the longest, and stand well away from the flower like great wings. It is something of the shape and colour of *Monsieur Furtado*, though larger, as indeed it ought to be, considering the great difference in growth. These two, *Etoile de Lyon* and *Monsieur Furtado*, with *Madame Bravy* and *Marie Guillot*, always seem to me the true types, if not the only perfect specimens, of the globular shape in Roses.

Francisca Kruger (Nabonnand, 1879).—A Rose which found little favour at first, but now yearly improves and increases in reputation. Of good growth and foliage, doing well as a dwarf, not much liable to mildew, and, when once it has commenced to expand, but little hindered by rain. It comes occasionally malformed or even with a green eye, but is often very perfect in form. A very free bloomer, and a good autumnal; the small buds are lovely in colour and shape, and a strong plant well thinned and attended to is capable of producing very fine exhibition blooms, large enough to show with H.P.s, and very lasting. A beautiful Rose, of very varied and changeable colour, strong large specimens when fully out, often showing an attractive and universal shade of yellow through all the inner petals.

Gloire de Dijon (Jacotot, 1853).—Perhaps the best known of all Roses. There can be little doubt that this is not a pure Tea, but has a cross in it of some other race, for the plant is absolutely hardy, of very vigorous climbing growth, and the foliage is unlike that of the Tea-scented China, and similar to that of *Grace Darling*. Like the *Noisettes*, Roses of this race must not have the strong young shoots pruned back, or wood instead of flowers will be produced; but, when this is understood, no Rose, save the common China or "Monthly," blooms so profusely and constantly, early and late, as the one under notice. Dean Hole says, "Were I condemned to have but one Rose for the rest of my life, I should ask, before leaving the dock, to be presented with a strong plant of *Gloire de Dijon*." Exhibitors are often blamed for neglecting Roses of real sterling merit like this one; but, though it has indeed many merits, it is not a show flower. A plant of *Gloire de Dijon* may be a hundred times the size of one of *Comtesse de Nadaillac*, and may have more than a hundred times the number of blooms; but take the finest *Gloire de Dijon* that ever was seen, and set it in a stand by a fair representative bloom of the other, and the great inferiority in every respect, even in size, would at once be manifest. The foliage is very fine indeed, but not so evergreen as *Maréchal Niel* and some other of the *Noisettes*, nor does it clothe the bases of the branches so well as *Rêve d'Or*. It is not liable to mildew, cares little for rain, and its bushels of blooms come very true to shape (which is weak to a florist's eye), and unusually uniform in colour. Last, but by no means least, among its good qualities, it will grow and flourish almost anywhere and anyhow, tolerably well even on a north wall. A Rose of such notoriety, which forms seed vessels freely, has naturally been a prolific parent of Roses of similar manners and customs, forming a race to themselves. Perhaps the best of these are *Bouquet d'Or* (Ducher, 1872), which, strange to say, is classed among the *Noisettes* in all the catalogues which I have seen except those of the N.R.S. and of Mr. G. Paul.—W. R. RAILLEM.

(To be continued.)

W. ALLEN RICHARDSON.

A LITTLE boy on being reproached with his bad manners and customs which were contrasted with the good ones of another little boy is reported to have said, "Perhaps so, but then he's been better brought up than I have." The "W. A. Richardson" described by Mr. W. R. Raillem in your last issue is never recognised by me or my family. If we meet him we do not see him, and this is not because we are proud, but because we are all so tall and such good climbers, although we don't approve of the custom which applies that term to Roses, that anyone less ambitious is known to have been badly brought up by those to whom he was entrusted in his early days, and to have acquired such low manners and customs as to preclude our acknowledging him. This is further shown by his producing a "very small" flower, and not all the care your correspondent and our friend may have lavished on him since he came to live with him will eradicate the faults thus early acquired.

We all certainly produce flowers sometimes nearly white, sometimes orange, and generally orange-ye low, edged with white, our true colour,

and we think this a good custom rather than a bad one, because variety is always charming, and we find people to love us in every state; but, as the dark Rose sometimes says when he puts on his chameleon change of brown—burnt, Mr. RAILLEM has the bad manners to call it—and gets hugely admired, "*Chacun à son goût.*"—W. A. RICHARDSON.

MARÉCHAL NIEL CANKERING.

I AM very pleased to hear from Mr. Biron that canker in Maréchal Niel can be so easily cured. The usual place for it to occur is at the juncture of stock and scion, and the cause commonly assigned is that the former does not grow and swell fast enough to meet the demands of the latter. In such a case a cut through the canker down the bark of the stem, as used to the trunks of young Apple trees, seems a reasonable remedy, and it does appear strange that I should not have heard or seen it suggested before. My own Maréchal Niels have suffered little from canker, as they have generally been killed by frost before they have become old enough, but a large plant in my greenhouse has now been attacked, and, with many thanks to Mr. Biron, I shall certainly use his remedy, and hope it may be successful. Has he ever tried it on Apple trees actually cankered?—W. R. RAILLEM.

ROYAL HORTICULTURAL SOCIETY.

MARCH 11TH.

NUMEROUS exhibits of an exceptionally interesting character filled the greater part of the available space in the Drill Hall, James Street, on Monday last, and the visitors found a spring show of considerable beauty. Orchids were strongly represented; Hippeastrums formed a bright display, Daffodils were well shown, Camellias were uncommonly fine, Roses were included with miscellaneous spring flowers, and a valuable group from Kew added much to the attractions of the meeting.

In the afternoon Mr. H. J. Veitch discoursed upon Hippeastrums and their culture in a practical and popular manner, and a good number of Fellows and visitors assembled to listen to the lecture.

FRUIT COMMITTEE.—Present—Sir Charles W. Strickland, Bart. (in the chair), and Messrs. R. D. Blackmore, Harrison Weir, T. Francis Rivers, G. W. Cummins, J. T. Saltmarsh, W. Warren, J. Hudson, W. Denning, G. Wythes, F. Q. Lane, G. Bunyard, P. Veitch, J. Willard, W. Bates, G. Clyffe, H. Balderson, J. Cheal, Dr. Hogg, and J. Wright. This may be fairly regarded as the slack time of the year in the fruit world, and only a limited number of exhibits can be expected. The most notable contribution was a collection of Apples and stewing Pears from A. H. Smee, Esq. (Mr. G. W. Cummins, gardener), and for which a silver medal was recommended.

Mr. James Moore, Seymour Cottage, Swan Road, Sutton, Surrey, sent a dish of a seedling Pear from Bergamotte Crassane, medium-sized fruits of rich flavour, but much over-ripe. The Committee desired to see fruits in good condition another year, with information relative to the character of the tree. Mr. Miller sent a dish of Claygate Pearmain Apple from Ruxley Lodge, Esher. A dish of the same variety was also placed on the table from Smee's collection, this being the better of the two in quality, and votes of thanks were awarded. Messrs. R. Veitch and Sons, Exeter, sent a dish of Ashford's Seedling Apple, a favourite Devonshire market variety, raised by Mr. Reynolds of Ashford, Pinhoe, medium-sized, firm, fairly well-coloured fruits, used for dessert and culinary purposes. Some of the specimens were referred to Chiswick for testing their keeping properties.

Splendid dishes of stewing Pears grown by Mr. Cummins for Mr. Smee were placed on the table, the varieties including Catillac, Uvedale's St. Germain, Pius IX., Verulam, Winter Franc Real, and Besi Mai. A cultural commendation was unanimously awarded. Mr. Cecil Hooper sent a variety of small baskets for packing fruit, and a vote of thanks was accorded. Mr. Mil'ner, Ruxley, sent a bushel basketful of very fine Mushrooms, and a cultural commendation was awarded.

Mr. Smee's fruit, for which the silver medal was recommended, comprised about thirty varieties of admirably grown and well kept Apples, including a dish of the Gooseberry Apple grown in 1888, and the Pears above referred to. The recommendation of the medal was unanimous.

FLORAL COMMITTEE.—President, W. Marshall, Esq., in the chair, and Messrs. R. Dean, B. Wynne, W. Holmes, T. Baines, C. Jefferies, C. T. Druery, H. B. May, G. Nicholson, H. Herbst, James Walker, H. Cannell, E. Mawley, T. W. Girdlestone, C. Noble, J. Fraser, G. Paul, Harry Turner, and the Rev. H. H. D'Ombraim.

The group contributed from the Royal Gardens, Kew, comprised a number of rare and interesting plants, and the attention they attracted proves how much such collections add to the importance of meetings. Several members of the Aroid family were included, amongst them being *Godwinia gigas* with an enormous deep purple spathe, and *Arisæma speciosum*, one of the smaller Aroids, of an ornamental appearance, the deep purplish brown spathes being regularly streaked with white, and the trifoliate leaves also give a bold appearance to the plant. Very remarkable was *Tacca artoocarpifolia*, with flower stems 5 or 6 feet high, and bearing a cluster of flowers and long drooping filaments like the better known *Attaccia cristata*. Another curiosity was *Strelitzia Nicolai*, which has flowers similar in shape to *S. Reginae*, but the colours are white and purple, and it is consequently less showy. The Poison Bulb (*Buphane toxicaria*) was represented by a plant in flower—a dense

umbel-like head of dull crimson flowers, in the style of a *Hoemanthus*. It is from this bulb that the bushmen of South Africa are said to prepare a poison for use on their arrows. *Æchmea glomerata* may almost be counted amongst the curiosities, though it is also decidedly ornamental, the closely set bracts being scarlet tipped with purple. Rhizomes of the Arrowroot (*Maranta arundinacea*) were exhibited, and excited some interest in those who, though familiar with the preparation sold as arrowroot, had never seen the plant from which it is obtained. Of strictly ornamental plants several *Rhododendrons* were the most notable. *R. arboreum* and the variety *roseum*, together with *R. grande* (*argenteum*) were represented by fine heads of flowers; *Brownæa arhiza* has somewhat similar dense trusses of flowers; *Acacias retinoides* and *verticillata*, with yellow flowers, are useful species, the former very fragrant.

From Messrs. J. Veitch & Sons came an excellent historical group of *Hippeastrums* (*Amaryllises*) representing the gradual advance effected since the old *Acramani pulchella* was sent out. This variety, with *Crocea grandiflora*, *Johnsoni*, *Graveana*, and others of the early improvements were shown, and there were also plants of *reticulata Leopoldi*, King of the Crimson, *Empress of India*, and a grand new variety named *Champion* (certificated). In another group were plants of *Azalea mollis* varieties, *Andromeda japonica*, *Boronias megastigma* and *heterophylla*, and *Primula obconica*.

Camellias are annually expected about this time of year from Messrs. W. Paul & Son, Waltham Cross, and at this meeting the yearly contribution comprised twelve large boxes of handsome blooms, for which the Committee awarded a silver Banksian medal as a recognition of their merits. Numerous varieties were represented, most of the best old and new varieties being included.

Daffodils and hardy flowers furnished a beautifully bright and fresh group as staged by Messrs. Barr & Son (bronze medal). Double and single *Narcissi* of many varieties were there with the brilliant *Anemone fulgens*, *Chionodoxas*, *Crocuses*, *Iris reticulata*, and *Snowdrops*. A group of foliage plants and Ferns from Mr. H. B. May (silver medal); and Messrs. Paul & Son, besides the *Cœlogynes* already noted, had some boxes of fresh and beautiful Rose blooms and a pyramidal plant of *Rosa polyantha grandiflora*. Mr. H. Porter, Freshfield, Liverpool, sent a plant of an *Adiantum* named *Porteri*, said to be the result of a cross between *A. cuneatum* and *A. gracillimum*, but it seemed to be a variety of the former with slightly smaller pinnules. Messrs. H. Cannell & Sons, Swanley, were adjudged an award of merit for a collection of well grown *Cinerarias* bearing richly and diversely coloured flowers. Mr. J. T. Gilbert, Dyke, Bourne, Lincolnshire, showed some Crown Imperials and a large flowered Primrose named *Primrose Dame*. From the Society's garden also came plants of the peculiar *Billbergia nutans* with green flowers edged with purple and pink bracts.

ORCHID COMMITTEE.—Present: Harry J. Veitch, Esq., in the chair; and Messrs. F. G. Tautz, F. A. Philbrick, Lewis Castle, Henry Williams, E. Hill, J. Douglas, J. Dominy, H. Ballantine, H. M. Pollett, F. Sander, James O'Brien, and Dr. M. T. Masters.

From Messrs. Sander & Co., St. Albans, came a handsome group of choice Orchids, for which a silver Banksian medal was recommended, and several certificates were also adjudged for novelties included in the group. Very notable were well grown plants of the beautiful *Phaius tuberculatus* on rafts or in baskets, and bearing fine spikes of its remarkable flowers. At St. Albans this Orchid is grown in a warm house, suspended above a tank, and flourishes there in a surprising manner. *Dendrobium lituiflorum superbum* is a fine variety, with large flowers and deeply coloured. A curiosity was noticeable in *Oncidium heteranthum*, having two forms of flowers, one with the ordinary rounded sepals and petals, yellow, and brown, and white; the other small, with linear creamy white segments. Several large specimen plants of *Dendrobium nobile* varieties were shown, and a large *D. Wardianum*; a new species of *Lycaste* in the way of *L. aromatica*, but distinct and wanting its fragrance; *Oncidium cruciatum*, *Selamipedium Sedeni virginale*, several *Maxillarias*, and the certificated plants described at the end of this report.

Messrs. B. S. Williams & Son, Upper Holloway, also contributed a beautiful group of Orchids most tastefully arranged with Palms, Ferns, and other foliage plants. The *Odontoglossums* were especially noteworthy, several varieties of *O. crispum* being remarkable for the size and excellent shape of the flowers. *O. cirrhosum* was well represented, as were also *O. Andersonium*, *O. odoratum*, and *O. facetum*. There were capital examples of the fragrant and graceful *Dendrochilum glumaecum*, the peculiar *Phaius maculatus*, and the greenish flowered *Dendrobium macrophyllum*, with several plants of the pure white *Cœlogyne cristata alba*. Amongst other plants the fragrant *Boronia megastigma* was admired, the neat salmon coloured *Azalea rosæflora*, and the double form of *Sparmannia africana*.

Messrs. J. Veitch & Sons, Chelsea, exhibited a small group of valuable and beautiful hybrid Orchids from their extensive stores, and in addition to these, certificated and described, the following were noticeable:—*Cymbidium eburneo-Lowianum*, with buff coloured flowers, attracted attention, but it has been previously certificated; *D. Wardiano-japonicum*, from a cross between the two species expressed in the name, was considered to be in the way of *D. transparens*, and the effect of *D. Wardianum* was not very evident; *D. micans*, from *D. Wardianum* and *D. lituiflorum*, partakes of the colouring distinguishing the last named, and is a decidedly pretty Orchid; *Cypripedium Othello*, from *C. hirsutissimum* and *C. villosum* Boxalli, is an interesting cross, but not sufficiently developed at present to merit an award. Messrs. J.

Laing & Sons, Forest Hill, sent several excellent varieties of *Cattleya Trianae*, for one of which an award of merit was granted; also the bright red Carnation Madame Arthur Warocqué, one of the Souvenir de la Malmaison type. Messrs. Paul and Son, Cheshunt, exhibited plants of *Cœlogyne cristata* and its varieties, for which an award of merit was adjudged.

Amateurs' exhibits were numerous and good. Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, sent the yellow flowered *Dendrobium signatum*, which was certificated, and *Dendrobium Smilliæ*, a peculiar and interesting species, with short racemes terminating the stout pseudo-bulbs, the flowers small, pink and white, with a knob-like deep green lip. G. Appleyard, Esq., Savile House, Savile Road, sent a charming spotted *Odontoglossum* bearing the name of Appleyardianum, somewhat resembling *O. hebraicum*. Mr. G. Wythes, Syon House Gardens, Brentford, showed flowers of *Cœlogyne cristata* and *Cypripedium villosum*.

H. Mark, Esq., Cheriton, Albemarle Road, Beckenham, Kent, exhibited a plant of *Oncidium tetracopis*, with brown sepals and petals, the lip being marked with yellow and brown. F. G. Tautz, Esq., Studley House, Hammersmith (gardener, Mr. Cowley), showed a dark coloured variety of *Cypripedium selligerum*, named *rubrum*, the whole of the flowers of an exceptionally rich tint. A plant was also shown under the name of *Cypripedium Rothschildianum*, which was determined, on reference to the Committee, to be *C. Elliottianum*, and an opinion was expressed that the figure published in the "Botanical Magazine" under the name of *C. Rothschildianum* really represents *C. Elliottianum*. A very distinct variety of *Odontoglossum Pescatorei* came from the same garden, and was certificated.

PLANTS CERTIFICATED.

Dendrobium Aspasia (J. Veitch & Sons).—The result of a cross between *D. Wardianum* and *D. aureum*, and two plants were shown in which, while the flowers were practically identical, the habit of growth was very different, the strong and tall one resembling *D. Wardianum*, the other much shorter and like *D. aureum*. The sepals and petals are light-coloured or nearly white, tipped with purple, the lip somewhat like that of *D. aureum*, with a central golden bronze blotch, margined with white and tipped with purple. A handsome and distinct hybrid; a decidedly valuable addition to those already raised by the same firm.

Cypripedium Numa (J. Veitch & Sons).—A hybrid obtained from a cross between *C. Stonei* and *C. Laurencianum*, and resembling one that has been already named *C. Godseffianum*. The flowers are dark coloured, the dorsal sepal heavily streaked with maroon, the petals spotted with a similar colour, the lip like *C. Stonei* in shape but much darker in hue.

Lycaste Skinneri, *Young's Variety* (F. Sander & Co.).—A magnificent variety with white sepals, the petals and lip tinged with a peculiarly delicate and distinct shade of apricot, tinted pink. An excellent novelty.

Phaius hybridus Cooksoni (F. Sander & Co.).—A remarkable hybrid raised from a cross between *P. tuberosus* and *P. Wallichi*, the latter being the seed parent, and it was obtained by Mr. Norman Cookson at Wylam-on-Tyne amongst the many treasures which he has secured. *P. Wallichi* is a tall strong growing species with large brownish flowers and white sepals, and *P. tuberosus* is one of the most delicately beautiful Orchids in cultivation, the markings and colouring of the lip being almost indescribable. The hybrid is somewhat stronger in growth than the pollen parent, but much less so than the seed parent, while in the flowers it presents a strange combination of the colours. The result is that the lip is a peculiar purplish bronze, the sepals and petals tinted with pink and a brownish suffusion running through them. It is one of the hybrids in which the fusion of characters can be seen at a glance.

Cypripedium Schomburkianum (F. Sander & Co.).—An interesting new species of the *Selenipedium* section, from the Roraima, with neat flowers, the lip yellowish green, the petals long, narrow, and drooping (botanical certificate).

Phœnix Rœbelini (F. Sander & Co. and James O'Brien).—A dwarf Palm, with dark shining green pinnate leaves 9 to 12 inches long and 6 to 8 inches broad, the pinnæ narrow and straight. It is compact in habit, graceful, and is said to be of exceedingly slow growth, consequently it is well adapted for decorative purposes where small plants are required.

Cattleya Trianae marginata (J. Laing & Sons).—A beautiful variety, in which the lip has a clearly defined white margin, contrasting with the richly coloured central portion. The flower is of good shape, and the petals broad (award of merit).

Camellia La Vestale (C. Turner).—It is seldom that additions to the certificated Camellias have to be recorded, but that named above is a charming novelty. The flowers are pure white, of excellent symmetrical shape, the outer petals slightly recurving, and it is therefore not quite so flat as the well-known variety *alba*.

Odontoglossum Pescatorei melanocentrum (F. G. Tautz, Esq.).—Very distinct and effective, the sepals and petals pure white, the base of the lip and column being a deep crimson, which shows up on the white ground colour, and from that the name is derived.

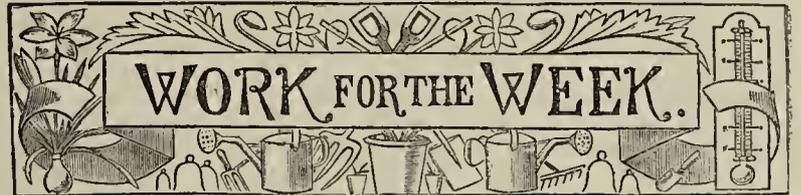
Oncidium Larkianum (J. Larkin, Esq., Derriville).—A supposed hybrid between *O. Gardnerianum* and *O. Marshallianum*; the lip bright yellow, large; the sepals and petals brown, edged with yellow (award of merit).

Angraecum hybrid (H. Low & Co.).—An interesting little Orchid, apparently a hybrid between *A. hyaloides* and *A. citratum*, and strangely intermediate in both floral and habit characters between the species named.

Dendrobium signatum (Sir Trevor Lawrence, Bart., M.P.).—A yellow flowered species, suggestive of *D. luteolum* in the shape of the flowers, the sepals and petals recurving, and the lip having a dark blotch in the centre.

Hippeastrum (Amaryllis) Champion (J. Veitch & Sons).—A grand variety with finely proportioned flowers 9 inches in diameter, the perianth divisions nearly 4 inches across, and of a rich deep scarlet colour.

Cattleya Trianae fulgens (H. B. Mildmay, Esq.).—Very handsome, the petals extremely broad, of a purplish mauve tint, the lip intense crimson and gold in the throat (award of merit).



FRUIT FORCING.

VINES.—*Early Forced Vines in Pots.*—These must sustain no check through dryness at the roots, affording tepid manure liberally, surfacing the soil with rich material, and if the roots extend beyond the pots feed them there as well. Secure a good moisture by damping in the morning and early afternoon, also before nightfall, maintaining a night temperature of 65°, 70° to 75° by day, and 80° to 85° with sun heat, and close early to keep it to 85° or 90°. When the Grapes begin colouring still continue the atmospheric moisture, and feed liberally, as the fruit swells considerably after commencing to colour, and to enhance the quality maintain the temperature named with sufficient ventilation constantly to insure a circulation of air.

Early Forced Planted-out Vines.—In houses started early in December the fruit is thinned and swelling freely. The border, especially in the vicinity of the hot-water pipes, must be duly supplied with water somewhat in advance of the temperature of the house, liquid manure materially assisting in swelling the berries. Mulch the border with short but rather fresh manure, or a few fresh droppings sprinkled on the surface occasionally will afford much benefit to the foliage and roots, but they must not be given too liberally or the ammonia arising will injure the foliage. Maintain a genial condition of the atmosphere by damping in the morning and at closing time or early in the afternoon. Ventilate early, but not before 70° to 75° is reached, securing with increased ventilation and sun heat a temperature of 80° to 85°, closing early to husband the sun heat. At night 60° to 65° is suitable, and 70° to 75° by day artificially.

Houses Started in January.—The Vines are in flower or advanced to the thinning stage. Secure a night temperature of 65° to 70°, 5° more for Muscats, 70° to 75° by day artificially, and 80° to 85° with sun heat. Maintain a moderately dry atmosphere, ventilating constantly. Fertilise all shy-setting varieties carefully. Early Vines do not make the progress desired, especially those with the roots in cold borders unprotected sufficiently from cold rains, snow, and frost. The Vines break badly, and the bunches show a tendency to blindness, some of them running to tendrils and others not advancing freely. Under such circumstances a slight increase of temperature and a reduced supply of moisture for a short time may be beneficial. Bright sunny days with sharp winds render careful ventilation necessary. Avoid sudden changes of temperature, and admit air in small quantities at a time, avoiding cold currents.

Houses Started Early in February.—Breaking into growth freely, these require attention in disbudding and regulating, stopping them two to four joints beyond the bunches according to the space. Stop the laterals up to the fruit at one joint, or remove them altogether except from the two lowest leaves; those above the bunches may be allowed to make two or more joints before being pinched, but no more foliage should be encouraged than can have full exposure to light. Remove all superfluous bunches, also ill-shaped bunches of the free-setting varieties as soon as those that are the most promising for the crop can be determined. Raise the temperature to 60° at night, 65° by day from fire heat, and up to 75° to 80° with sun heat.

Houses to Afford Fruit in August and September.—Start the Vines at once, making the inside borders thoroughly moist by the application of liquid manure or water at a temperature of 80°. It will in some degree stimulate the roots and compensate for the inactivity of those in the outside borders, which do not as a rule become active until a mean of 50° is assured, and which does not take place ordinarily until early April. Fermenting materials, however, can do little good after this. The atmosphere should be kept moist by damping the rods and every available surface two or three times a day, 50° being a sufficiently high night temperature, and 65° by day with sun.

Late Houses.—The necessity of starting late Grapes in good time is evidenced by the numerous instances of indifferent ripening and keeping

that are seen in autumn and spring, a longer period of growth being mostly all that is needed to produce good sized and highly finished fruit, and such as possess good keeping qualities. Syringe the rods several times a day, maintaining a moist atmosphere by damping the borders every evening. It is advantageous to cover the inside border with fresh stable manure, the straw being shaken out, the ammonia given off having an invigorating tendency. Night temperature 50° to 55°, day 55° to 60°, and 10° to 15° more with sun, and rather free ventilation from 65°.

Young Vines from Eyes.—Those struck and potted as advised in our last calendar are now well rooted, and should be shifted as soon as the roots reach the sides of the pots into 6-inch size, placing them on shelves over the hot-water pipes in preference to plunging them in bottom heat. Syringe amongst them, and pinch the laterals at the first leaf, unless they are intended for planting out this season, when the laterals may be left intact.

Cut-back Vines in Pots.—Those for fruiting in pots next season will soon be fit for turning out and shaking out of the soil, and any long bare shoots cut back and placed in 7 or 8-inch pots, from which they can be transferred when established to 12 or 13-inch pots. If these, or the eyes named in the preceding paragraph have been plunged in bottom heat, they may be returned to it for a time, 75° to 80° being suitable, but otherwise bottom heat is not necessary. Keep them close and moderately moist until they are established. Train the canes near the glass, as they cannot have too much light, it being important that the growth be solidified as made. Turfy loam rather rough, with a fifteenth of steamed bone meal added, form a suitable compost for Vines in pots. Clean pots and efficient drainage of clean walks must be employed in pot Vine culture.

MELONS.—The weather being cold but with bright days, the advance has been satisfactory. Plants that were shifted into larger pots and being intended for planting out, should be given their fruiting quarters before they become very much root-bound. Pot later sown plants when they show the second leaves, employing warm moist soil.

Melons in Dunq-heated Frames.—The plants from the seed sown early in February will be fit to plant out. Make up a bed for them, and make also a successional sowing. Those growing Melons in frames and having to keep up a successional supply of fruit should make a sowing every fortnight or three weeks up to May, making fresh beds at similar intervals to receive the plants, so as to maintain an uninterrupted supply of fruit. Maintain a night temperature of 60° to 65°, and 70° to 75° by day, as far as practicable, by timely attention to the linings and coverings over the lights at night, admitting air from 75°, but without lowering the temperature, and keep through the day at 80° to 85° from sun heat.

In houses and hot-water heated pits maintain a night temperature of 65° to 70°. 5° less on cold nights, 70° to 75° by day, admitting a little air at 75°, allowing the temperature to rise to 85° with increased ventilation, closing at 80° or 85°, sprinkling at the time every available surface; and if the temperature rise to 85° or 90° so much the better. Keep the bottom heat at from 75° to 80°.

CUCUMBERS.—Increased light and sun heat correspondingly increase evaporation, necessitating a greater supply of atmospheric moisture. Damp the house so as to maintain a genial condition of the atmosphere, and syringe the plants lightly during bright afternoons. A night temperature of 65° is sufficient, allowing 5° advance when the external air is mild, 60° being the minimum in the morning when the external air is cold. Liquid manure may be given once or twice a week, and the evaporation troughs kept charged with it. Do not allow the fruit to hang too long, or they may weaken the plants; besides, they keep fresh for several days with their stalks inserted in saucers of water. Thin the fruits well, especially on plants just coming into bearing, stopping the shoots one joint beyond the fruit, removing superfluous growths and bad leaves as they appear, as well as staminate blossoms.

The weather continuing unfavourable for early forcing in pits and frames heated with fermenting material, the temperature being difficult to maintain at a point calculated to promote steady progressive growth, a close atmosphere resulting in a superabundance of moisture, not unfrequently causing the loss of the plants. When the moisture cannot be expelled, much may be done by sprinkling dry lime or soot round the plants, those substances having a strong affinity for moisture. Continue to prepare material for making fresh beds and lining purposes, and sow seed as successional plants are required.

FIGS.—*Planted-out Trees Started Early in the Year.*—Attention must be given to the budding and stopping, removing all the overcrowded shoots, stopping those intended to form well developed spurs for the second crop at the fifth or sixth leaf or joint, the leading shoot, where there is space, being allowed to extend, as they invariably afford the finest fruit. Water the borders freely with liquid manure at 80°, taking care not to apply it too strong, and mulch with rich compost, which will attract the roots to the surface. Encourage also the emission of roots from the stem by placing fibrous pieces of turf and partially decayed manure in contact with it, and by extending the material outwards a quantity of feeders will be secured, which if supplied with warm liquid manure will greatly assist the maturity of the fruit.

STRAWBERRIES IN POTS.—Vicomtesse Hericart de Thury is perhaps the best flavoured and prettiest fruit for jellies, but it makes no appearance beside Noble or La Grosse Sucrée, one of either weighing three of the first-named. All plants should now be in position for advancement by gentle forcing, or if not they should be brought under glass

without further delay. Some may be advanced by placing them in houses where there is a gentle heat, and others may be placed in cool houses where they will come on gradually. In all cases it is necessary to examine the drainage, removing any moss or other matter from the surface of the soil, and wash the pots, surfacing with horse droppings rubbed through a sieve, which prevents the soil leaving the sides of the pots and discourages action at the surface. Until the trusses are showing it is well if the temperature does not exceed 50° by artificial means, and between that and setting 55° is safe, advancing to 65° by day with free ventilation. The Strawberry also likes plenty of light until the fruits are set, but afterwards they are apt to become dried, hence they swell best in positions where the sun's rays are not strong at mid-day. After the fruit is set and swelling a temperature of 60° to 65° at night, 70° to 75° by day, with an advance from sun heat to 80°, 85°, or 90° is necessary, affording copious supplies of water and liquid manure until the fruit shows indications of ripening, when somewhat drier and more airy atmosphere with diminished supplies of water at the roots will afford large, well-swelled fruit of good flavour. Thinning the fruit must be attended to as soon as the setting is completed, removing the smallest and deformed fruit; and on no account must there be insufficient water at the roots during the swelling, but during flowering the soil must be kept moist, avoiding extremes either way. The chief object in Strawberry forcing is to secure an early and unbroken supply until those in the open ground come in, and this, where there is a number of houses started at intervals, will admit of its being done without much trouble or change of plants, whilst in others some tact will be necessary to meet the requirements.

KITCHEN GARDEN.

THE WEATHER.—March came in with snow and frost, 18° of the latter being registered with us on the 3rd. Many seeds were sown in the open ground, but of these we have little fear. As soon as the weather changes kitchen garden work will be resumed, as we like to have it well advanced before the end of the month.

TURNIPS.—A few rows will be sown on the first opportunity. Two sowings are sufficient in March. The Early Milan is the best for a first crop. Sow in drills 1 foot apart on a sheltered piece of ground. A moderately light soil is better at first than heavy material.

MUSHROOMS.—More beds should still be formed, as they will bear in April or May when vegetables may be scarce. Beds in the open air and cool sheds may be relied on. Our beds of this winter have not required much attention, and they have been unusually productive. Those which began bearing in November are exhausted, and being used on some of the vegetable quarters, particularly for Carrots and Beetroot, where rank manure is objectionable. Others that have been bearing since the new year and now declining will have a thorough application of water heated to 90°. When slightly dry they will be retrenched and covered with hay. This will generate fresh heat, and we shall have a very good second crop of Mushrooms in April.

CABBAGES.—These promise to be ready by Easter. They have received a slight check, but being sturdy, will soon recover under mild weather. A sprinkling of nitrate of soda will expedite growth. Guano is the next best stimulant, and the plants will be benefited by having a little more soil drawn to their stems.

SEAKALE AND RHUBARB.—These may now be forced with little trouble. If a quantity of straw or littery stable manure is put over the Seakale crowns the growths will soon push up into it and turn out clean and well blanched. This is a good substitute for pots, but the latter may be used by those who possess them. Rhubarb now shows signs of growing without any forcing, but to hasten the supply a few old boxes or casks may be turned over the crowns with or without a little hot manure round them. We placed some Rhubarb roots on a hotbed in December. Others were covered over as suggested with a good hotbed, and the latter have been much the more profitable.

GARLIC AND SHALLOTS.—A supply of both should be provided. Select some of the best bulbs, fork a rather light piece of ground and press the bulbs into it at a distance of 10 inches from row to row, and 6 inches from bulb to bulb. We merely cover them with soil, and never fail to have abundance. The Shallots are harvested and housed in autumn, but the Garlic may be left in the ground year after year. It is never wanted in great quantities, but a little is often called for.

SOWING SEEDS IN HEAVY SOILS.—Many growers complain that they cannot sow their seeds early because their soil is so heavy and cold. This is undoubtedly a great drawback. One of the greatest aids to germination is the free use of potting shed refuse, or sand, leaf soil, and wood ashes. If the ground is very heavy and wet the drills for the seed should be opened twice the ordinary depth, half filled with the mixture for sowing in, and the seeds covered with more of it. By following this practice all kinds of vegetables may be sown early in strong soils.

PARSLEY.—If the first sowing has not been there should be no further delay. The seed and young plants are very hardy. Parsley likes rich ground. Old plants are now somewhat deficient in leaves. Some of the largest have perished, and should be removed. A quantity of soot or guano sprinkled between the plants, and the Dutch hoe run amongst them will induce quick growth, and the supply will be maintained till the spring sown plants furnish leaves.

HORN CARROTS.—It is useless sowing the long varieties for early crops; the Horn varieties only should be sown in March, and those who have not placed seed in the ground should do so as soon as possible.

BROAD BEANS.—The December sown Mazagans are up and healthy. Their produce will be very acceptable, but we like the Longpod type better for a second or main crop, and these may now be sown in rows 2½ feet apart in the strongest soil in the garden, and do not fail to give them plenty of manure if long succulent pods are desired.

EARLY CELERY.—The seed sown some weeks ago has produced plants that are now ready for pricking out. These may be inserted in shallow boxes, but the best way is to transplant them 2 inches or 3 inches apart in free soil on a firm, gentle, hotbed, and protect with glass; water immediately, shade from bright sunshine for a few days, keep them sturdy by judicious ventilation, never allow them to suffer by want of water, and serviceable plants will be the result.

BRUSSELS SPROUTS.—The present is a good time to sow in the open for the main crop. The plants will be more useful next winter than those sown under glass, and which will button in August. The seed may be sown broadcast thinly and covered to the depth of half an inch.

PLANT HOUSES.

Bertolonias.—Young plants that were raised from cuttings in autumn and have been well preserved through the winter, may now be placed in 4-inch pots. Bertolonias grow well in a compost of peat and sphagnum in equal proportions with the addition of sand, covering the surface with a thin layer of moss. In potting slightly raise the plants above the rim of the pots, so that a pair of good leaves rest on the surface of the compost. No harm will be done by the removal of a pair or two of small leaves at the base, as roots will be produced from the stem, and larger foliage will result. In the majority of ordinary stove structures it will be necessary to grow the plants under bell-glasses, handlights, or in a frame so that they can be kept close and moist. It is necessary to tilt the lights daily, if only for a short time, to prevent the atmosphere from becoming stagnant. The tops from old plants or any side shoots that are upon them may now be rooted. The cuttings may be inserted singly in small pots in the compost advised above. Place a good pinch of sand in the centre to surround each cutting. They will soon root in brisk bottom heat in the propagating frame if kept close and shaded from the sun.

Sonerilas.—To have pans and pots of these in good condition cuttings must be inserted at once. They root freely in the propagating frame in sandy soil or, better still, all sand. They may be inserted thickly together in pots or pans, and transplanted into others as soon as they are rooted. They do well in the compost advised for Bertolonias, and will flourish in any stove where the atmosphere is close and moist, if a shady position is found for them. They are effective growing amongst the moss in pots of Vandas, Acrides, and other Orchids of a similar nature.

Fittonias.—A few good pans of these are effective in the stove, and should find a place where the object is to maintain this structure attractive throughout the season. For this purpose insert cuttings at once. They root freely in any close, moist and shady position if placed amongst chopped sphagnum moss and sand. When well rooted plant them in the pans in which they are to grow. They are most effective when well elevated in the centre. They grow luxuriantly in the compost advised for Bertolonias. Where small plants for various forms of decoration are in demand few surpass these in beauty when mixed with Mosses and small Ferns.

Panicum variegatum.—Cuttings should be rooted in quantity, for this Panicum is most effective in baskets suspended from the roof and for the margin of the stage. It grows so rapidly when once started and given favourable conditions, that in a few months it will furnish the whole space between the stage and floor of the house. The cuttings may be inserted in the pots in which they are to grow. The pots may be filled with equal parts of loam and leaf mould, with the addition of sand and one-seventh of manure. A good layer of sand should be placed on the surface. Those for baskets and other positions may be inserted in pans and transplanted when they are rooted. They root best in a close propagating frame.

Selaginella caesia.—Associates admirably with *Panicum variegatum*, and it would be impossible to produce a more pleasing effect than the two plants growing together alternately. The *Selaginella* may be in slightly the larger pots of the two, or before the close of the season it is low by the side of the other. They may be divided and started into growth, either in the stove or any structure, until they are sufficiently ornamental for placing in a permanent position. Equal parts of loam and leaf mould, with the addition of sand, form a suitable compost. Where Orchids are grown, and fine peat is plentiful, it may be used at the rate of one-third with the loam and leaf mould without the slightest risk of the plants not doing well.

Anthurium Andreanum.—Plants that have grown tall may be cut into lengths that have one good eye, and inserted singly in small pots in sphagnum moss and sand. The old foliage should remain on the pieces until they are rooted and commence growing, when they can be removed. Place a good pinch of sand at the base of each, and plunge the pots containing them in brisk heat. Portions of the stem root freely, and by autumn will make strong flowering plants. Throughout the autumn and winter the bright scarlet spathes are most effective. The old "stool" if not disturbed will soon make five or six shoots from the base, and in two years will develop into a fine large specimen. Propagate only from the best varieties. Anthuriums are handsome when secured to upright pillars used for the support of the roof.

THE BEE-KEEPER.

NOTES ON BEES.

THE weather since February 23rd has been cold and frosty. The mean temperature up till March 2nd was 27½° Fahr. The lowest temperature since winter commenced occurred on the morning of March 2nd, the thermometer indicating 22° frost, standing at 10°. So low a temperature after so much mildness has had a telling effect on nuclei or weak stocks of bees. I have been an eye-witness to many that tided over the winter well until that morning, when they succumbed. The dead bees in every case were located on the opposite side from the honey, but there is nothing new in that. What I wish to impress upon beginners is the condition in which hives should be wintered. It will be observed the bees did not die through want of food being in the hive, but through being in the wrong part of it. I have as weak hives living as those that are dead. They live because in the fall I packed the honeycombs all on one side, compelling the bees to cluster with the honey on one side. The bees in deep combs naturally leave passages, so that a free communication from one comb to another is created for their own conveniences. The Americans tried to improve upon this, and drilled holes in a straight line, instead of the zigzag form of the bees, and many in this country imitated the American plan. Combs so drilled aggravate disaster to bees, as they create a direct draught, which lowers the atmosphere and so benumbs the bees that it is impossible for them to move about in search of food, especially when they have been advancing to the side with the least quantity of honey. Bees, although few in number, will not die if the honey is all on the one side; but it is better if it is overhead. I never knew a hive of bees to perish from want when the honey was above them, nor do I believe they ever will. It is the natural place for it, not only in winter but at all times, and the proper hive for that is the storifying one.

AUTUMN-GATHERED POLLEN.

I have stated often that I never had a hive that suffered from being pollen-bound, nor do I believe I ever shall. Modern beekeepers have discovered that there is some fatality in having a good supply of pollen in the hives during winter, and advise removing it. When I see a plant under my management not growing as I wish I try to discover the cause, and then adopt the remedy. When bees show signs of something wrong I know that I have bungled, and arrange matters so that the bees can act according to their instinct as well as to my profit. To remove pollen-laden combs from a hive in autumn is a simple mode of frustrating the advance of bees at the most important season relative to the profit of beekeepers. I question if the advocates for removing pollen from hives in autumn can give a satisfactory answer why they do so, or the advantages gained. Some of my hives that in autumn had an extra supply of pollen are far advanced, and if the weather is favourable are sure to be profitable. Had I removed the pollen in autumn the eggs that have matured into young bees would have been all destroyed.

FLOWERS FOR HONEY.

"I intend starting bee-keeping this summer, and should be glad to know what flowers and shrubs are most suitable for the production of honey. Any hints as to the best kind of hive for a beginner would also be appreciated.—W. J. S."

The above question covers by far too wide a range to be answered satisfactorily. If the extent of the ground had been stated a selection could have been better given. It is only where there is a good extent that honey producing flowers are profitable—*i.e.*, where bees can gather surplus, and Clover is the first and best. Beans are good for honey, and where a demand for the seed

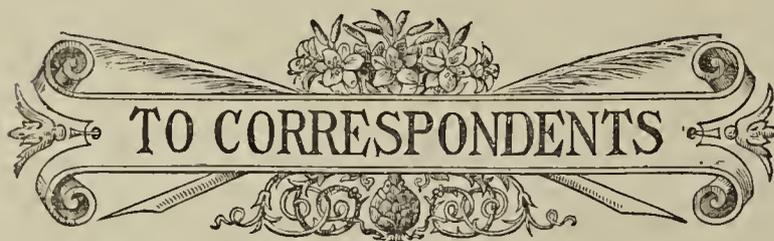
of Turnips or other of the Brassica tribe exists one sort might be grown. Fruit trees and bushes are all honey producing, and are more profitable, and in many cases as ornamental as some kinds of shrubs. Of the latter the Laurustinus, Willows (the male for pollen and the female for honey), Berberis, Lilac, Cotoneaster microphylla, and nearly every flowering shrub and tree are honey or pollen producing, and not unfrequently both. Amongst garden flowers are the Aconite, Snowdrop, Crocus, and Hellebore; Anemone cœrulea is a great favourite. Poppies for pollen and Mignonne for honey and pollen are good annuals, so are Godetias. Arabis is perhaps the best spring plant, but all the Cruciferæ family are useful.

Some flowers appear to have a fragrance that tempts the bees to them, but no honey or pollen, or so little that the bees get no good from them, working for hours without showing signs of either pollen or honey. This seems the point where the line can be drawn between instinct and reason. The greatest advantage is in having spring and autumn flowers in profusion. The latter keep the bees out of danger when they would otherwise be disposed to rob or be entrapped in shops or houses, as well as to be storing a supply of pollen for spring breeding. The spring flowers, although not directly profitable, encourage the bees, resulting in strong hives at the proper time, which without bee-keeping in many cases would be a failure. It is a delusion to say that uncapping cells of honey and feeding in dribblets forwards the bees. It is the profusion of flowers, combined with the genial warmth of spring, that stimulates bees.

Apart from the usefulness of flowers for bees we have their pleasure at all times, and as many of them are sensitive to changes of weather and approaching rains we can often predict a storm a long time in advance. A bed of Poppies never deceives us, neither does the Chickweed, and Tulips will sometimes long before a gale bend their heads from its direction. If carefully watched our native plants will tell the coming weather as well as many of the tender exotics.

THE BEST HIVE.

The Lanarkshire storifying hive is without doubt the cheapest and most serviceable hive in use. Its principles, both at home and on the continent, are every day becoming more in repute. Full instructions for making will be found in previous issues of this Journal.—A LANARKSHIRE BEE-KEEPER.



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Cool Orchids (Inquirer).—You will find full instructions respecting the culture of cool Orchids in Mr. B. S. Williams's "Orchid Growers' Manual," in Messrs. Veitch & Sons' "Manual of Orchidaceous Plants," part i., or in Castle's "Orchids: Their History and Culture," published at this office, post free 1s. 2½d.

Alternantheras (P.).—Thousands of these plants are grown in boxes in the manner you propose, and planted from them direct to the beds in June, or when the weather permits. They should have a tempera-

ture of not less than 60°. The variegated Mesembryanthemum may be treated in the same way, but the soil does not adhere to the roots so well. If you can dig some turves 2 inches thick or so, char the grass sides, cut into 2 inch squares, inserting a cutting or rooted plant in each, with sand falling in round it, and pack these squares closely in boxes, covering with leaf mould or light soil, the plants will be in excellent condition for transplanting in due time.

Grafting Pears (C. E.).—You may insert one scion in each branch, two if the branches are as thick as your wrist, and if both grow retain the best for the future branch, removing the other. As many branches as there are now, provided they are not much less than a foot apart, just so many you must provide for forming the future tree. The scions, well-ripened wood of last year, should be taken off at once and covered with soil or cocoa-nut fibre refuse on the north side of a wall to keep them fresh and retard their growth.

Packing Fruit (R. C. L., India).—American Apples are sent to this country in barrels, the fruit being firmly pressed down without any packing. Each barrel holds about three bushels. Much fruit is sent from Kent to London in round, very strongly made, bushel baskets, which you may have seen described on page 145 of our issue of February 20th. French Plums are sent in deal boxes, differing in size, many being about 2 feet long, 18 inches wide, and 9 inches deep; but choicer fruits are sent in much smaller boxes containing two or three layers of fruit, packed in soft paper shavings, the boxes also being lined with paper, the ornamental or "laced" margin of which is brought very neatly over the fruit, giving to the boxes a very attractive appearance. Some of the smaller of these, a foot in length or less, are extremely tasteful, and not a few purchasers consider them worth more than the fruits they contain.

Cropping Vines (C. G.).—We do not think the owner of the house has any cause to complain about the produce of the Vines since they were planted, and we hope he has not complained. Most persons who have new Vine borders made and Vines planted not unreasonably "expect good crops of Grapes," and we know that in their anxiety to produce them some gardeners have exceeded the bounds of prudence in cropping when the Vines were young. We do not imply that you have done this, as when the fruit finishes well, and the Vines at the same time make satisfactory growth, that shows that they were not exhausted. During the present season you had better not allow any bunches to remain on the weak laterals, but allow them to extend for gaining strength. If you obtain a weight of Grapes, averaging from 1 lb. to 1½ lb. per lineal foot of each Vine, that may be regarded as satisfactory under the circumstances. It is contrary to our rule to recommend dealers in anything. Consult advertisements and catalogues.

Exhausted Vines (S. T.).—As the Vines in the outside border are in such an exhausted state, and you have convenience for making a border inside the house, we should not lose a season in attempting to renovate them, but make a border 3 or 4 feet wide in the house, of good soil, building the front of the border with turves, procure some good canes at once and plant when growth commences, cutting out some of the old and apparently nearly useless rods to afford room for training young canes. It would not be advisable to shorten the young Vines for planting at this season of the year, as bleeding would most likely follow; neither would it be desirable to allow all the buds to grow, as this way you would probably have a great number of very weak laterals. We should rub off the buds down to where it would be convenient for fresh growths to start, and not until these had attained a length of several feet should we remove that part of the canes divested of buds. In this way you may have very good young canes this year and very strong ones the next.

Forced Lilacs (G. II.).—As these cease flowering cut them close back, only leaving one or two eyes on the past season's growth. They should be placed in a cool house to harden and break again into growth, and finally into cold frames. If care is taken many of these plants will make strong growth, and flower freely enough another season. Although it is better to have two batches of these plants and flower them alternately, but those not in this position may achieve success with one batch of plants, but every care must be taken of them after flowering. It is a mistake to give such varieties as Charles X. too much root room, for they grow too strongly, and fail to flower in consequence of the wood being insufficiently ripened. When thoroughly root-bound short sturdy growths only are made, which are certain to ripen if assisted for a time in a frame, and then plunged outside in a warm, sunny, open position. When they have commenced growth they may be top-dressed with a little rich material, and given afterwards two or three applications of artificial manure during the season of growth. Guelder Roses may, after flowering, be subjected to the same treatment; but these are so easily rooted, either from ripened wood or green shoots, so that there is no difficulty in having good batches of plants for alternate years. Without a large supply of flowers are needed for cutting, plants in 5 and 6-inch pots are the most serviceable for decoration.

Steamed Bone Flour (T. R.).—This is the result of grinding bones that have had the fat and a portion of the ossein melted out of them by being subjected to steam pressure and powerful heat in a close boiler. When the bones are thus dried they can be ground into finer particles than new bones can, and the action of the manure is quicker in consequence, notwithstanding that the finer and drier flour may contain a little less nitrogen. Perhaps your best plan will be to dissolve them by either of the following methods as may be most convenient:—1, Place 5 cwt. (or 12 bushels) of bone on an earthen floor, surrounded

by a rim of ashes; pour on as much water as the bones will suck up, and then pour on 2 cwt. of sulphuric acid; it will boil somewhat violently for a while. When this has subsided it will get tolerably solid, and the ashes and all may be shovelled up together, and will be fit for use in a day or two. 2, Take a large watertight hogshead and cover the bottom with about 5 inches deep of dry soil; on this put a layer of bones of the same depth, and cover them entirely with wood ashes; on these another layer of bones, then ashes, and so on till the hogshead is full, placing a good thickness of ashes on the top. Leave it exposed to the rains all summer and winter till spring. Then on removing the contents of the hogshead the bones will crumble to powder under a slight pressure, and form one of the most valuable manures ready for immediate use.

Fuchsias from Seed (W. R.).—We have raised many hundreds of plants from seed, but few of them on flowering proved equal to existing varieties; still the pursuit is interesting to amateurs who desire to have something new of their own raising. The pods should be carefully gathered when ripe. As the seeds are enveloped in a pulp it is necessary, in order to preserve them, to cleanse them effectually. This is done by washing; bruise the berries with the hand, and mix them with water; as soon as the pulp is all washed off pass the liquor through a hair-sieve fine enough to catch the seed, wash it repeatedly till it is quite clean, then dry it gradually; put it up in brown paper, and keep it in a dry room till spring. Sow now in a mixture of light sandy loam and peat, cover slightly, and place the pots in a gentle hotbed. When the seedlings are half an inch high transplant them in rows across pots 5 inches wide—these will hold about twenty or thirty plants each—and then replace them in the hotbed. In these pots they may remain for a month or six weeks, and then they will require placing singly into 3-inch pots. Place them for a few days in a cold frame, and keep pretty close and shaded till fresh roots are formed, and then they are then able to bear the full light, and a moderate admission of air. Give plenty of the latter as they acquire strength, and when the pots are full of roots give another shift into 4-inch pots, and let them remain in these last till they flower. Many of them will flower the first year, and then is the time to make a selection. The selected ones should be repotted, and grown on to the end of the season to prove them. Cuttings of the best may be inserted, and the whole kept in the coolest part of the greenhouse during the winter.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. G.).—The flowers you send being florists' varieties, not species, they do not come within our regulations for naming specimens. See the conditions above. We know of no better chance of obtaining the names of florists' flowers than by sending some to the nursery from whence the plants were purchased. (Herefordian).—The Begonia is glaucophylla splendens, the Orchid is Oneidium Cavendishianum, and the other plant is Cyrtodeira fulgida. (D. C.).—1, Posoqueria multiflora; 2, Spathiophyllum Patini; 3, Paullinia thalictrifolia; 4, Insufficient without flowers; 5, Myrsiphyllum asparagoides. (B. N.).—1, Pinus longifolia; 2, Retinospora squarrosa; 3, Juniperus canadensis. (B. E.).—The specimens are not good ones, but we will endeavour to give them names in next issue if the plants can be identified by comparison with others. (C. H.).—It is one of the numerous species of Eria, probably E. ohsa, though the pseudo-hulb is scarcely so large as that is commonly. (X.).—It is difficult to name such scraps, and we can only guess that 1, Lycopodium clavatum; 2, 4, and 5, Asplenium Trichomanes; 3, Doodia aspera; 6, Polypodium pectinatum.

TRADE CATALOGUES RECEIVED.

- B. L. Coleman, Sandwich, Kent.—*Catalogue of Farm Seeds.*
- Little & Ballantyne, Carlisle.—*Farm Seeds, 1890.*
- Benjamin Wallace Knight, Battle, Sussex.—*Catalogue of New and Choice Plants.*
- Mark Smith, Louth, Lincolnshire.—*Price Lists and Testimonials.*
- Vilmorin Andrieux et Cie., 4, Quai de la Mégisserie, Paris.—*Catalogue of Tree and Shrub Seeds.*
- H. B. May, Dyson's Lane, Upper Edmonton.—*Catalogue of Ferns and Fine-foliage Plants.*
- E. P. Dixon & Sons, Hull.—*Price Current of Agricultural Seeds.*
- Dohie & Mason, 66, Deansgate, Manchester.—*Price List of Agricultural Seeds.*

COVENT GARDEN MARKET.—MARCH 12TH.

MARKET still very quiet with early forced goods in fair supply, and price barely maintained.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, ½ sieve	2	0	to	6	0	Oranges, per 100	4	0	to	9	0
Nova Scotia and						Peaches, dozen	0	0	0	0	0
" Canada, per barrel	18	0	25	0	0	Red Currants, per ½ sieve	0	0	0	0	0
Cherries, ½ sieve	0	0	0	0	0	Black "	0	0	0	0	0
Grapes, per lb.	2	0	5	0	0	St. Michael Pines, each ..	2	0	6	0	0
Lemons, case	10	0	15	0	0	Strawberries, per oz. ..	0	9	1	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Artichokes, dozen	0	0	to	0	0	Leeks, bunch	0	2	to	0	0
Asparagus, bundle	6	0	12	0	0	Lettuce, dozen	0	9	1	3	0
Beans, Kidney, per lb. .. .	1	6	2	6	0	Mushrooms, punnet .. .	1	6	2	0	0
Beet, Red, dozen	1	0	2	9	0	Mustard & Cress, punnet	0	2	0	0	0
Broccoli, bundle	0	0	0	0	0	Onions, bushel	3	0	4	0	0
Brussels Sprouts, ½ sieve	1	6	2	0	0	Parsley, dozen bunches	2	0	3	0	0
Cabbage, dozen	1	6	0	0	0	Parsnips, dozen	1	0	0	0	0
Capsicums, per 100	0	0	0	0	0	Potatoes, per cwt.	5	0	4	0	0
Carrots, bunch	0	4	0	0	0	Rhubarb, bundle	0	2	0	0	0
Cauliflowers, dozen	2	0	4	0	0	Salsify, bundle	1	0	1	6	0
Celery, bundle	1	0	1	3	0	Scorzenera, bundle	1	6	0	0	0
Coleworts, doz. bunches	2	0	4	0	0	Shallots, per lb.	0	3	0	0	0
Cucumbers, doz.	4	0	7	0	0	Spinach, bushel	1	0	2	0	0
Endive, dozen	1	0	0	0	0	Tomatoes, per lb.	0	6	0	9	0
Herbs, bunch	0	2	0	0	0	Turnips, bunch	0	4	0	0	0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Acacia or Mimosa, French,	1	0	to	1	6	Marguerites, 12 bunches	2	0	to	6	0
per bunch						Maidenhair Fern, dozen					
" " per basket	3	6	7	6	0	bunches	4	0	9	0	0
Arum Lilies, 12 blooms ..	3	0	5	0	0	Mignonette, 12 bunches ..	2	0	4	0	0
Azalea, dozen sprays .. .	0	6	1	0	0	" Fr., large bunch	1	6	2	0	0
Bouvardias, bunch	0	6	1	0	0	Narcissus, French, 12					
Cauellias, dozen blooms	1	0	4	0	0	bunches	1	0	3	0	0
Carnations, 12 blooms ..	1	0	2	0	0	Pelargoniums, 12 trusses	1	0	1	6	0
Christmas Roses, 12 blms.	0	0	0	0	0	" scarlet, 12 bunches	6	0	9	0	0
Chrysanthemums, dozen	0	0	0	0	0	Primula (double) 12 sprays	1	0	1	6	0
bunches						(single) 12 sprays	0	6	1	0	0
Daffodils, dozen blooms ..	0	4	1	0	0	Roses (indoor), dozen .. .	1	6	3	0	0
Deutzia, per bunch	0	6	0	9	0	" Red, 12 blooms .. .	4	0	8	0	0
Epiphyllums, doz. blooms	0	6	0	9	0	" Tea, white, dozen .. .	1	0	3	0	0
Eucharis, dozen	3	0	4	0	0	" Yellow	2	0	4	0	0
Gardenias, 12 blooms .. .	12	0	24	0	0	" French, per bunch .. .	1	6	5	0	0
Hyacinths (Roman) dozen	0	6	1	0	0	Spiræa, dozen bunches .. .	6	0	9	0	0
sprays						Stephanotis, dozen sprays	0	0	0	0	0
Lapageria, 12 blooms .. .	2	0	4	0	0	Tuberose, 12 blooms .. .	1	6	2	0	0
Lilium, various, 12 blms.	2	0	4	0	0	Violets, dozen bunches ..	1	0	2	0	0
Lilium longiflorum, 12						" French, per bunch	1	0	2	0	0
blooms	5	0	8	0	0	" Parme, per bunch	3	0	4	0	0
Lily of the Valley, dozen	0	6	1	0	0	White Lilac, French, per					
sprays						bunch	4	0	6	0	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi, dozen .. .	6	0	to	12	0	Ficus elastica, each .. .	1	6	to	7	0
Arum Lilies, per dozen ..	12	0	18	0	0	Foliage plants, var., each	2	0	10	0	0
Arbor Vitæ (golden) doz.	6	0	14	0	0	Genista, per dozen .. .	8	0	12	0	0
Azalea, various, per dozen	18	0	30	0	0	Hyacinths, 12 pots .. .	6	0	9	0	0
Christmas Rose	0	0	0	0	0	Lily of the Valley, 12 pots	18	0	30	0	0
Cineraria, per dozen .. .	8	0	12	0	0	Marguerite Daisy, dozen	6	0	12	0	0
Cyclamen, per dozen .. .	9	0	18	0	0	Mignonette, per dozen ..	0	0	0	0	0
Daffodils, 12 pots	6	0	9	0	0	Musk, per dozen	0	0	0	0	0
Deutzia, 12 pots	6	0	9	0	0	Myrtles, dozen	6	0	12	0	0
Dracæna terminalis, doz.	24	0	42	0	0	Palms, in var., each .. .	2	6	21	0	0
" viridis, dozen	12	0	24	0	0	Primula (single), per doz.	4	0	6	0	0
Epiphyllum, per dozen ..	0	0	0	0	0	Rhodanthe, per dozen ..	0	0	0	0	0
Erica, Cavendishi, per pt.	2	0	3	0	0	Roses (Fairy), per dozen	19	0	12	0	0
" various, dozen	12	0	18	0	0	Saxifraga pyramidalis,					
" ventricosa, per doz.	18	0	31	0	0	per dozen	0	0	0	0	0
Enonymus, var., dozen ..	6	0	18	0	0	Solanums, per dozen .. .	6	0	12	0	0
Evergreens, in var., dozen	6	0	24	0	0	Tulips, 12 pots	6	0	9	0	0
Ferns, in variety, dozen ..	4	0	18	0	0						



SPRING PIGS.

As the time draws near when well-managed sows have their first litter special attention may advantageously be given to the subject of swine management now, in order that all which is necessary to promote the health of both sows and pigs may have timely attention. Health before all things say we, for unhealthy pigs are among the difficulties of farming, for which it is not an easy matter to find a remedy, and perhaps the best way to have healthy pigs is to breed all that are required upon the farm, and to avoid the purchase of animals apparently healthy, but which may have the germs of disease in their systems, soon to develop into a contagious disorder that may lead to serious loss.

A well bred, well fed sow is naturally ready for breeding at the age of six months, but many farmers prefer to wait at least two months longer, and some consider the age of ten months altogether best, as the yelts' frame is proportionately larger. Much depends upon treatment, and it usually answers best so to arrange matters that a sow has her first litter by the end of February or early in March, and her second litter in August, as then both litters have the advantage of long days and warm sunshine, under which they

thrive in a manner never equalled by late autumn pigs, for pigs suffer more from cold than any other animal, and so-called bad doers in winter require most of the food they get to keep them alive, the food being just so much fuel to sustain vital heat, hence the importance of well-planned breeding and of snug winter quarters for the pigs.

Spring pigs have all the advantage of weather that is possible in our fickle climate, and a very large proportion of their food will be turned to best account for its legitimate purpose of pork manufacture. It was laid down last month by Mr. Sanders Spencer, of Holywell Manor, St. Ives, Hunts, whose pigs are famous all over the world, that 4 or 5 lbs. of meal, consisting of one-sixth Wheat, three-sixths Barley, one-sixth Peas, and one-sixth Broad Beans will produce 1 lb. of pork if consumed by a fairly well-bred pig of six months old—or in other words, 15 lbs. of meal, costing less than 11d., will produce 3 lbs. of pork, at a cost of less than 4d. per lb. We give this statement because it is perfectly reliable, and also because these are the days of mixed food; but we may remind our readers that our young Londoners, of an average dead weight for the clean carcase of 56 lbs., realise 6½d. per lb. at Smithfield, and the food used is just middlings and maize. Inferior Wheat samples ought certainly to be turned to account for feeding purposes, and there should be no difficulty about mixed food at any farm where a fair proportion of the land is still used for corn growing.

It is a good rule not to keep large sows, but to dispose of them as they approach the unwieldy stage. In a commodious sty, with a moderate quantity of straw, the pigs should take no harm, and we prefer leaving the sow undisturbed. The sow is kept upon sharps and bran for the first month, by which time the pigs begin eating, and they are fed by means of a slip board, outside the sty, with fine middlings mixed preferably with milk thinly, in order that the difference or rather this addition to the sow's milk may not be so great as to cause scour in the pigs. Weaning generally occurs at the end of the sixth week, the pigs being at first shut out from the sow for a few hours only at first, the time being gradually extended till they are entirely withdrawn. After the weaning the diet takes a more substantial form, and the quality of the meal may be improved by mixing any corn set apart for the purpose. With the exception of maize all the corn should be home grown, unless indeed the home-grown corn is of such high quality that it answers best to sell it and purchase other inferior corn. This may frequently be the case, especially among Barleys, but where oatmeal is the staple pig food as it is in Sussex, large heavy home-grown corn is preferable, because it has less husk than light imported Oats. Green food and roots, especially Mangolds, is always a wholesome addition to the swine dietary, and a run on pasture should always be continued for sows free from maternal cares, both for the sake of health and green food. Healthy parents may be expected to bring healthy pigs, and they will continue so if due attention is given to cleanliness, wholesome food, and the strict exclusion from the farm of all other pigs that have not a clean bill of health.

WORK ON THE HOME FARM.

All horse stock must now have special care, for there is much risk of colds, sore throats, influenza, and still more serious complaints, while they are under the weakening influence of shedding the coat. An extra feed of corn daily may do much to support the system, and every attention should be given to horses after a journey or long day's work. A cough, accompanied by shortness of breath, should have immediate attention. The horse should go into hospital for a few days, have its throat well rubbed with mustard, and have bran mashes with scalded oats, and a powder in the mash night and morning as follows:—2 to 3 ozs. powdered nitre, and 9 to 12 drachms tartar emetic, mixed, and divided into six powders. This is a safe, sure, and very cheap remedy if only the case is taken in time. If more alarming symptoms present themselves at once call in a competent veterinary surgeon, for acute inflammation or congestion of the lungs may quickly cause the loss of a valuable animal. Mares heavy with foal should be worked with caution, but they are all the better for light work, which affords healthy exercise till within a short period of foaling. Then let each mare have a large loose box, and be kept quiet. A pregnant mare near her time ought never to be turned out with other horse stock, as is so frequently

done, for any excitement may lead to the loss of both mare and foal. One of our tenants lost a mare and foal in this way last spring; he then shut up the other mares, and went and insured them! Well, we hope it was a lesson for life; but he had been breeding horses for many years, and ought to have done better. Insure the mares, take proper care of them, and then you need not hesitate to breed. The one thing which can be said against horse breeding is the loss of the mare's work just when horses are so much in request upon the land; but if the arable land is reduced within reasonable limits it may answer to keep some really well-bred mares, for superior horses are certainly profitable at the present time.

OUR LETTER BOX.

Experiments in Agricultural Chemistry (G. E.).—Professor Jamieson's views on agricultural chemistry and the results of his experiments are embodied in a series of annual reports of the work of the Associations for the Improvement of Agriculture, which have for some years been under his control both in Sussex and Aberdeenshire. We believe the reports are only printed for the benefit of members of the Association, and are not sold.

Bone Meal for Pasture (J. J. S.).—Of bonemeal 3 cwt. per acre, and of half-inch bones 4 cwt. per acre is a fair dressing. Your employer is quite right in his preference for the half-inch bones. With a view to permanent benefit, as well as the immediate restoration of fertility in your grass land, which has been mown for twenty years, we strongly advise you to use, in addition to the half-inch bones, 1 cwt. nitrate of soda, and 1½ cwt. of mineral superphosphate per acre. Our first bit of experience of the value of half-inch bones for old pasture was gained some twenty years ago, when we tried them upon a 15-acre meadow in a poor, thin, silicious soil. The effect was good and lasting, for bones decay so slowly that they afford a certain store of food for many years, and it is the finer particles which tell upon growth for the first two or three years. Do not, however, place too much reliance upon the bones. They act beneficially in the soil, mechanically, and as a mild form of fertiliser; but bone-phosphate, the chief mineral constituent of bones, is almost insoluble in water, and the powerful agency of sulphuric acid has to be used as a solvent when we require prompt and full action of this phosphate upon a crop. Therefore use the bones, but also use the soda and mineral superphosphate every spring, only take care to use them early, and the cost of the manure will be returned tenfold.

Oil Cake for Dairy Cows (W. J. A.).—Linseed cake ought never to be used for dairy cows, because it spoils the milk for butter-making by imparting an unpleasant flavour to it, and it also renders a cow liable to milk fever at calving. The best meadow hay, sliced Mangolds, and bran is the best dietary for cows in milk now, 17 lbs. of Mangold and a gallon of bran being given to each cow in the morning at milking time and again at the second milking in the afternoon. For delicate or weak cows a few crushed Oats may be used to good purpose. Hay is given in racks morning and evening, care being taken to use only as much as the cows can clear up at once. If you have a chaffing and mixing apparatus then equal parts of hay and Oat straw may be cut up and mixed with minced or pulped roots. In Denmark, where many dairies are now under constant veterinary inspection, the winter dietary consists solely of hay, straw, Oats, Barley, and Carrots. We use Carrots during the last three months of the year, Mangolds coming into use with the new year, and we proved to our satisfaction long ago that for a strong healthy cow bran is quite sufficient without any corn.

METEOROLOGICAL OBSERVATIONS.

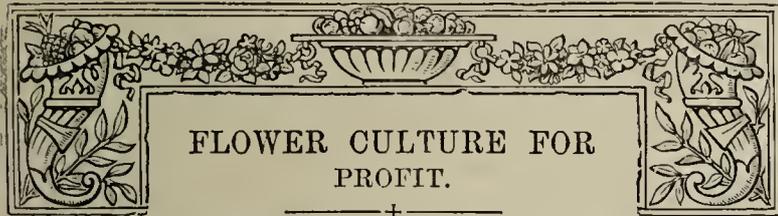
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Barometrical at Sea and Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890.											
March.											
Sunday	2	30.268	28.0	26.6	N.E.	36.0	32.4	23.2	84.2	24.3	0.010
Monday	3	30.495	24.9	24.5	E.	75.8	34.5	19.8	80.4	19.6	—
Tuesday	4	30.435	20.4	19.2	S.E.	34.9	49.8	15.6	61.5	12.8	—
Wednesday ..	5	29.885	39.9	36.7	N.W.	34.9	48.4	25.2	73.9	18.6	—
Thursday	6	29.779	47.9	44.4	N.W.	34.9	54.0	37.2	78.9	35.5	—
Friday	7	29.799	47.2	41.8	W.	26.9	52.9	44.1	82.2	24.4	0.006
Saturday	8	29.575	45.8	44.6	S.	38.3	52.0	41.4	73.0	28.1	0.110
		30.024	35.4	34.1		35.9	47.1	29.4	71.3	25.5	0.163

REMARKS.

- 2nd.—Bright with cold N.E. wind and occasional slight snow showers: snow about 1 inch deep at 9 A.M.; ground white all day.
 3rd.—Bright and cold, ground white all day.
 4th.—Cold with smoke fog all morning, bright afternoon, ground still white in the shade.
 5th.—Bright and mild, snow melting rapidly.
 6th.—Generally overcast but occasional sunshine, bright night.
 7th.—Fine with occasional sunshine in the morning, bright afternoon.
 8th.—Wet until about 11 A.M. then generally fine, but heavy showers at 1.45 and 5.30.
 Very cold at the beginning of the week, the minimum on the 4th being the lowest recorded in March during thirty years. Temperature of the week, as a whole, about 5° below the average.—G. J. SIMONS.



FLOWER CULTURE FOR
PROFIT.

THOSE who are fortunate in possessing a well-established healthy stock of *Eucharis grandiflora* ought to be able to flower these about three times in a year, and to sell the greater portion of the flowers at a highly remunerative price. Being, perhaps, among the most effective that can be used in wreaths and crosses, and of good service in bouquet making, there is always a good demand for these flowers. Seeing, also, that they succeed admirably in a house the roof of which is covered with *Stephanotis*, shade of some kind being in fact absolutely necessary during hot bright weather, there is all the more reason to attempt their culture on a somewhat extensive scale, though, unfortunately, failures will and do very frequently occur. The mite is the great bugbear in *Eucharis* culture, but even this is blamed for more failures than in strict justice ought to be attributed to it. In my humble opinion not a few failures might be traced to mealy bug. No good gardener can long tolerate the appearance of bug-infested plants, but too often the remedy is the commencement of the decadence of the stock of bulbs. The fleshy leaves of the *Eucharis* are most susceptible of injury from any kind of insecticide used sufficiently strong to destroy even a few bugs, and the rapid decay of the leaves is accompanied by an equally bad collapse at the roots. Whether or not the mite were present when the plants were in full vigour, it is very certain they could not make any headway till the plants are much weakened from other causes. Once it has become necessary to shake out and repot *Eucharises*, or other plants of a somewhat similar nature, there is no mistake about the capability of the mite to retard progress and improvement. We have completely skinned and soaked infested bulbs for twenty-four hours in Gishurst compound and other strong insect-destroying concoctions without apparently destroying the mite, and the remedy does not lie in that direction.

All who can successfully defy either the mite or mealy bug rarely if ever fail to grow *Eucharises* in a most profitable manner, and it will, therefore, be understood my remedy for these, and which takes the form of preventive measures, is perhaps the best method of culture in any case. No greater mistake can well be made than to be constantly pulling pots of bulbs to pieces, this being a sure means of preventing free flowering, and, in addition, simply invites an attack of mites. Supposing it is desirable to either increase the stock, to renovate unhealthy bulbs, or to get quite rid of mealy bug, the best course to pursue is that indicated by Mr. H. Porter (page 140)—that is to say, a fresh start should be made with bulbs only, the leaves being cut clean away. I first saw this plan successfully adopted by a friend who wished to thoroughly clear his plants from mealy bug, and I have since tried it for the mite. At the present time I have whole boxes of bulbs and many in small pots that were actually thrown away as being worthless, all attempts to rid them of the mite having failed. It would appear a hard matter to kill them, as after all their rough usage they are rooting strongly, and forming healthy foliage. Another instance has come under my notice where numbers of *Eucharis* bulbs were thrown away into a wood near the garden. They remained there all one winter, then commenced growing afresh, and all were potted again with the best of results. A box of mite-infested bulbs I once sent to a market grower who was convinced he could destroy the mite were, from a cause which need not

be gone into, not delivered for two months. Quite recently I heard that they are now in a very healthy condition, the mite, if present, being quite harmless.

Where many err is in placing several bulbs previously in an unhealthy state in one large pot. This may answer well where no mite exists, but rarely in the case of those in a comparatively weakly state. Our plan, and which we have tried with good results, is to place either one large or three smaller leafless bulbs in a 4-inch pot, plunging all in a fairly brisk bottom heat. Roots and leaves are formed simultaneously, and at this time of year quickly, the pots are soon well filled with roots. Before they become badly root-bound they are shifted into 6-inch pots, and if the growth made is extra strong yet another shift may be given in the autumn. Newly disturbed bulbs are apt to flower soon after they are repotted; but this has a most weakening effect, and the flower head should be pinched off as soon as seen. Kept in a brisk stove heat, not too near the hot-water pipes, though not necessarily plunged in fermenting material, carefully shaded from bright sunshine, frequently syringed and not over-watered, well-established *Eucharises* generally ought to grow strongly and defy the mite. The single bulbs will increase in size, and also form side shoots, a strong pot being eventually obtained. In each and every case an unlimited root run is liable to end in the loss of roots and the ruination of bulbs. The more crowded the pots are with roots the less likely are the plants to fail to flower frequently or to succumb to the mite. Some of the most profitable pots in the country are not disturbed or repotted in any way till they actually burst the pots they are in, numbers of the largest specimens remaining in the same pots five years and upwards. A light loam with plenty of fibre in it best suits *Eucharises*, any in which clay abounds being objectionable. To three parts of the former add one of good leaf soil and coarse sand freely. If the loam available is of a heavy close nature burnt loam and charcoal must be liberally added to the compost, as it is of the greatest importance that the soil remain sweet and porous. It is almost needless to add that the pots should be clean and carefully drained.

As before pointed out, well established specimen *Eucharises* will flower two or three times in a year, the flowering period being to a certain extent regulated by the cultivator. Where many plants are grown it is possible to have flowers, few or many, all the year round, but as a rule they ought, as much as possible, to be most abundant at Christmas, Easter, and other Church festivals, this being when there is a great demand for them. While the plants are growing strongly the heat should be kept up, but when the young leaves are fully grown the most advanced may be transferred to a somewhat cooler house, the temperature ranging say from about 55° by night to 65° in the daytime, or a drop of about 10° all round. No drying off ought ever to be practised, but while resting rather less water will be needed. A rest of from six weeks to two months is sufficient, and all that is then needed is sudden excitement or a considerable increase in temperature to start them flowering freely, and probably in less than a month. During the flowering and growing period weak and clear soot water may be given frequently with advantage, but ought to be discontinued while the plants are resting. Soot is rightly considered a good deterrent of the mite, but it is sometimes of a somewhat fiery nature, and must not be used recklessly.

Prices for *Eucharis* blooms do not vary so much as might be expected, as we have frequently sold them in June and July to better advantage than in the spring and autumn months, Eastertide excepted. A fair average would be 3s. per dozen (thirteen ought always to be sent), but if they can be consigned in moderate quantities direct to florists the average would be nearer 4s. The lowest price we have booked is 2s. 6d., and the highest 6s. per dozen. Seeing that a strong pot of bulbs will annually produce not less than thirty spikes, and not unfrequently double that number, from four to six flowers being

borne on each scape, I think I am justified in placing Eucharises in the front rank of profitable flowers. As a rule far too much fuss is made in packing the flowers for transit. We merely line a shallow fancy soap box for sending a few, and a thin mustard box for larger quantities, with either soft dry moss or cotton wool, this being covered with tissue paper. A small piece of well moistened cotton wool is wound round the short footstalk of each flower, this being most necessary in warm weather, and all are packed closely together face upwards, being then covered with a sheet of tissue paper, over this a layer of cotton wool, on which the lid closes tightly. The flowers cannot shift, and we have never had a complaint of their travelling badly. Small boxes are sent by post, heavy ones by rail. It is useless to send stale flowers. All should be gathered directly they are fully expanded, and placed in a cool room till they can be sent away.—M. H.

BLENHEIM PIPPIN AND OTHER APPLES.

BLENHEIM Pippin is undoubtedly one of our very best Apples, and its fruit is entirely worthy of the high estimation in which it is so generally held, for in it we have a remarkable development of every characteristic of the best market fruit—large size, handsome shape, high colour, and with this is combined the intrinsic merit of rich-flavoured juicy flesh. But alas! the noble fruit is almost as rare as it is rich, and it was with a feeling little short of downright amazement that I saw this Apple recommended repeatedly in the *Times* and other newspapers as a leading sort for profitable fruit culture. No doubt the fruit commands a brisk sale when you can get it, but that is just the point—it is a shy bearer, not only as a young tree but in its prime. I have tried it in every way—as a standard, bush, pyramid, and espalier; in a deep natural loam, in specially prepared soil on different stocks, and in different counties; but nothing which I have done, or have seen done by others, has had any material influence upon its barren nature.

It was in the year of the great comet in the fifties that I had a standard tree of it in a grass orchard, heavily laden with splendid fruit, several bushels of which was stolen off the tree one night by some rogue, whose judgment was better than his principles. That orchard was in my hands for the next six years, but I never had another crop of fruit on the Blenheim Pippin. Since then I have seen a few good crops of it, and have more than once heard the owner of the fruit boast of his good fortune in having for once got a crop for such a rarity. I tried it in Sussex, both on the free stock and the Paradise, but failed to obtain fruit during all the years (some fifteen or sixteen) that the trees were in my hands.

These trees were part of a large selection of sorts, common and uncommon, made for me by Dr. Hogg, and among them was an Apple named Cobham, the fruit of which bears so close a resemblance to Blenheim Pippin that it only requires a little more colour to pass muster as a veritable Blenheim. It is quite as juicy, is as rich in flavour, the flesh is more tender and sweet, the fruit keeps good longer, and, what is more to the purpose, it comes freely upon the trees when they are quite young, so that it proved entirely worthy of its character of an early and abundant bearer. The tree grows with such vigour on the Paradise stock that it soon attains to a large size, and from its vigour and fruitfulness is worthy of a place with such fine sorts as Warner's King and Lane's Prince Albert as a capital substitute for Blenheim Pippin.

Cox's Orange Pippin is rightly regarded as a substitute for Ribston Pippin. It has also been recommended as a substitute for Margil, which certainly is a mistake so far as my experience goes, for I have found Margil on the Paradise stock a sure bearer, yielding fruit early and abundantly, and if possible the trees become more fruitful with age, the spurs being crowded with blossom buds, the wood growth being perfectly healthy without a trace of canker. Planted in the same soil, Cox's Orange Pippin on the Paradise made magnificent pyramids and bush trees, and there were equally fine espaliers of it on the free stock, but where it had one fruit Margil had a bushel, so that I for one am bound to give Margil preference, both for the home supply and for market. It ought certainly to hold an important place in profitable fruit culture.

To show how difficult it is to recommend Apples for general cultivation I may mention Court Pendu Plat, of which there were several fine standards in the grass orchard which I have mentioned. They were uniform pictures of health, and generally had an abundant crop of fine fruit, the production of which is all the more certain from the late flowering habit of the tree. These trees were in the deep rich loam of the Cherry orchard district of North

Kent, but some others which I subsequently planted in Sussex became so crippled by canker as to be worthless. In the Kentish loam Red Astrachan answered perfectly, and I know nothing more beautiful among Apples than its deep crimson fruit covered with a delicate bloom, but I could do no good with it in Sussex, where the trees certainly grew freely and were healthy, but they never had a fruit. This was in the ironstone district, where much of the soil contained so much oxide of iron that fruit which thrives in it has very highly coloured fruit, and I retain a lively remembrance of the magnificent appearance of some trees of Fearn's Pippin in full bearing, every branch being crowded with handsome glossy crimson fruit.—E. L.

PLANT HYBRIDISM.

[A paper by Mr. Lewis Castle, read at the Horticultural Club, March 11th, 1890.]

No subject connected with horticulture presents so many features of interest and importance as plant hybridisation; it has been closely studied by some of the best observers and most skilful practitioners, numberless facts are recorded bearing upon the matter, and extraordinary results have been achieved. To review the results alone would require a large volume, but to provide matter for discussion it will only be necessary to touch upon a few points, and detail observations or experiments illustrating them.

It must, however, be premised that it is exceedingly difficult to draw up any general rules, as what is found to hold good in one family, or even in one genus of plants, does not apply with the same force in others, and where any general principle can be defined the exceptions are often so numerous that its value is considerably diminished. This no doubt is mainly due to the impossibility of providing identical conditions in every case, and also to the fact that though so much is known regarding plant-fertilisation there are still many mysteries or seeming anomalies to perplex investigators. Fortunately in certain marked groups of plants—sometimes merely the varied descendants of one species—hybridising or crossing has been reduced to a system, and after long experience those engaged in the work can predict with some approach to accuracy the probable results of their experiments. With an extension of such methodical observations we may expect much which is now obscure will be ultimately elucidated.

INFLUENCE OF POLLEN AND SEED PARENTS.

One portion of the subject which merits especial attention is a consideration of the relative effects of the pollen and seed plants employed as parents in the production of hybrids. We have to deal with some of the principal phenomena of plant life, and the results of the innumerable experiments would appear to give us good foundation for definite rules. This, however, is far from being the fact, and we can only generalise in the majority of cases. In the Orchid family perhaps hybridising has been reduced more nearly to a system than in any others, and the number of reversed crosses exactly resembling the product of the original cross is so great it points to the conclusion that the pollen and seed parents have but little special effect. One of the most skilful and successful of Orchid hybridisers writes me on this subject as follows:—“In no case can I see one hybrid but what is quite intermediate in habit of plant and shape of flower, though in some cases out of the same seed pods we get variety of colours. In every case if possible we take the strongest plant for the seed parent. We always have an object, but in some cases are disappointed, and those concerning which we are most hopeful are often the most disappointing. Some hybrids, particularly in the *Cattleya* family, even before flowering are exactly intermediate in habit between the two parents, that any person who knows the family well can read the parents in the plant. Take *Cypripedium Sedeni*, for example, from *C. Schlimi* crossed with *C. longifolium*, and the reversed cross. These are so nearly alike that we cannot distinguish one from the other; habit of plant, time of flowering, leaves, length of flower-stem, shape and colour of flower, are all the same.”

An example of this fusion of characters was afforded at a recent meeting of the Royal Horticultural Society, when plants of the hybrid *Cypripedium Lathamianum* were exhibited from *C. Spicerianum* crossed with *C. villosum*, and from the reversed cross the results were practically identical. In a few instances the reversed cross has resulted in something of a slightly different character, as for example in *Zygopetalums*, *Z. pentachromum* having been raised from *Z. Mackayi* crossed with *Z. maxillare*, and *Z. Sedeni* from the reversed cross. In the majority of instances, however, there is a fusion of character that is rarely seen in other plants.

The term hybridising is now usually confined to the fertilisation of one species by the pollen from another, and crossing to the same operation effected between varieties of one species; the latter

term was, however, at one time applied to the reverse crossing already noted, and hybridising is a sufficiently general term to be fairly applicable to either case. In *Primula sinensis* and its numerous forms we have examples of extreme variation artificially produced without the aid of another species, but the variations obtained under cultivation are so pronounced that crossing has been resorted to with surprising results in increasing the number of forms and tints. One of the largest cultivators of these and some similar plants assures me in making crosses between two varieties of *Primula sinensis* he always expects the seed parent to give three out of every four characters, and it is this fact which renders it difficult to produce distinct alterations in any type, as it is only either by chance or by a long series of experiments that a desired result can be secured. Another hybridiser who has been engaged for some years in the production of *Primula* seed, has found that the seed parent generally gives the foliage and habit, and the pollen parent the floral colour. With regard to this I proved from experience a few years since that in crosses between the "Fern-leaved" and "Palm-leaved" varieties, when the former was made the seed parent there was a much larger per-centage of seedlings with "Fern leaves" than if the pollen was used on the "Palm-leaved" varieties, thus supporting the opinion just given. It has also been observed with regard to *Primula sinensis*, that the pollen from a double variety placed on a single variety was more likely to give a good proportion of double flowered seedlings in the progeny than if the parentage were reversed. As an example of that the pollen of an excellent double variety with flowers of a moderately good crimson colour was employed to fertilise a single variety of an exceptionally bright tint, and the result was a double variety with flowers equal to the pollen parent in form and substance and as bright as those of the seed parent. As exceptions to this, however, it must be noted that in two instances where doubles have been crossed on singles, all the seedlings came single, and in the reverse cross about 10 per cent. were double.

In experiments with Balsams I have found somewhat similar results to those described—namely, pollen from a single flower applied to a double flower produced a much larger per-centage of double-flowered seedlings than where the single variety was made the seed parent; but when pollen could be obtained from another plant of a double variety for application to the double seed parent the result was still more satisfactory in the number of double-flowered plants produced, though the colours were often less bright than in the parents, and this loss of colour was not so noticeable when a single-flowered pollen plant was employed.

With Zonal Pelargoniums I made a number of experiments some years ago, partly with the object of testing the relative effects of the respective parents, and though the results were somewhat diverse, yet amongst hundreds of seedlings raised quite 80 per cent. more closely resembled the seed parent in habit and foliage, and the pollen parent in flowers. Mr. Peter Grieve, who performed good service amongst the variegated Pelargoniums, has stated that in his opinion the constitution of a plant is chiefly due to the seed parent, and he attributes the delicacy of many of the Pelargoniums named to the employment of the plants with variegated leaves as seed bearers. He further says, "The most vigorous and in all respects the best I have raised have been from green-leaved seed parents." This we can easily understand, but my observations teach me that considerably more depends upon what may be termed the individual characters of the seed plant than upon the specific or varietal distinctions. Thus the selection of a healthy plant for seed-bearing is likely to give better results than a weakly individual of the same species, whatever the cross may be.

It has been stated with good reason that where so much difference results from reverse crossing it is in a large measure due to diversities of form or constitution of the pollen, and in some of the most variable cultivated plants the microscope reveals a surprising variation in the form of the pollen grains. Certain plants, however, possess an inherent capacity for variation through a greater range than others, and in two that have been noted—*i.e.*, *Primula sinensis* and the Balsam, all the forms have been originated by intercrossing without the aid of other species. Phlox Drummondii might be cited as another instance of a similar kind, all the variations having been formed within the limits of one species. It appears that under cultivation the constitution of a plant gradually becomes disturbed; different soils and conditions, with perhaps increased vigour, produce effects that are most likely to be felt in the delicate floral organs, though probably more evident in the foliage and growth. To increase the tendency to variation, therefore, plants should be grown under as diverse conditions as possible consistent with their health, and when the crossing is confined to the forms of one species the most distinct should be selected, except where some particular character is desired, when close in-breeding will sometimes produce the wished for result.

PARTIAL FERTILISATION AND STERILITY.

Hitherto attention has only been directed to plants in which there has been little difficulty in securing seed; the progeny have presented a fusion of characters more or less complete, and have been equally fertile, or nearly so, with their parents. Next to these we have the hybrids or crosses, which are themselves either partially or wholly sterile, except when fertilised with pollen from another variety or species. Examples of this occur in nearly every family of plants where hybrids have been produced, and even amongst the descendants of one species, as in the highly bred forms of *Primula* previously mentioned, *Cyclamens*, and other plants. In some of the brightly coloured single *Primulas* much difficulty is experienced in securing seed for this reason, as even when abundance of pollen is produced, as happens occasionally, it seems useless except when employed on other varieties. Close intercrossing often induces sterility in the seedlings, and is commonly attended by a greatly increased vegetative growth; a consequence as some suppose of the sterility, but probably in certain cases it is the cause, for it is well known that excessively luxuriant plants are rarely such good seed bearers as those of a medium or even stunted growth. There is another form of partial sterility, this time in the parent plants, when perhaps it is possible to make one plant the seed parent in a cross, but not to reverse the cross and secure seed. Something after this kind took place in the production of the hybrid *Rhododendron* Princess Alice, which was obtained by two cultivators from *R. ciliatum* fertilised with pollen from *R. Edgeworthi*, yet Mr. Anderson-Henry has stated that he repeatedly tried to secure seed from *R. Edgeworthi* by employing pollen of *R. ciliatum*, but failed every time.

Sometimes in the results of hybridising one species with another some of the seedlings show altered characters partaking of the two parents, and others closely resemble one only of the parents. A peculiar instance of this kind has been recorded, in which *Begonia manicata* was crossed with *B. coccinea*, and one pod of seed was produced. Seedlings were raised, and amongst them were two distinct forms that were afterwards named *B. prolifera* and *hybrida*, but a large proportion were the true *B. manicata*. In this case it would seem that either the pollen of *B. coccinea* had sufficed to impart vitality to the ovules without altering their character, or that some of the ovules had been self-fertilised, either being equally remarkable.

IMPERFECT FERTILISATION.

The last form of fertilisation that need be considered here is that in which the pollen only influences the ovary to induce an enlargement, the ovules not being affected in any degree, or not sufficiently to render them fertile. Dean Herbert recorded many instances of this kind, and amongst them he mentioned that when *Alstroemeria aurea* is fertilised with pollen from other species full sized capsules are produced, but no perfect seeds. Fruits have been obtained on *Passifloras* in the same way, but seedless, and numbers of other instances could be given.

Turning to the Orchids we have as regards the *Odontoglossums* two curious facts to consider. One is that numbers of *Odontoglossums* are found in a wild state so exactly intermediate in floral form and colouring between other well known species as to leave no reasonable doubt that they are natural hybrids; they have been introduced freely, and have puzzled botanists and horticulturists not a little. The other fact is, that notwithstanding this evident variability and tendency to intercrossing in a wild state, the *Odontoglossums* have not yielded to the cultivators' attempts to obtain hybrids under artificial conditions, indeed they have stubbornly resisted all efforts, and have caused more disappointment than any other Orchids. Seedlings have been raised in a few instances, but invariably lost, and the strangeness of this circumstance induced me a few years ago to make some experiments with a view to testing the matter. I had several healthy plants of *Odontoglossums*, and amongst them were six each of two favourite species—*O. Pescatorei* and *O. triumphans*. They were in good condition for experiment, flowered well, and if a cross could be effected they gave a promise of something worth securing. Yellow forms of the *O. Pescatorei* type had been introduced, and one charming variety, for which Mr. Brownlow D. Knox obtained a first-class certificate from the Royal Horticultural Society on April 13th, 1886, impressed me greatly, and the impression was intensified when the same plant realised £165 at a public auction the next day. There was little doubt that *O. triumphans* or *O. tripudians*, most likely the former, had conferred the yellow colour, and it did not seem too much to expect similar results from an artificial cross. Three of the strongest plants were selected of *O. Pescatorei* and of *O. triumphans*, and two flowers of each were reciprocally fertilised—*i.e.*, the pollen of *O. Pescatorei* was placed on *O. triumphans*, and *vice versa*, thus twelve flowers were fertilised, and to my great

satisfaction it appeared to be effectual with nine, for in the course of a week the ovaries were perceptibly enlarging. They were carefully watched, and as they slowly advanced golden visions began to rise of a few thousand yellow flowered plants of *O. Pescatorei*, and these hopes were sustained for nearly six months, when the capsules, which were then well developed, commenced shrivelling, and upon examination were found to contain nothing in the shape of fertile seed.

With the other plants of the two species named a different experiment had been tried—namely, seven or eight flowers were fertilised with their own pollen or with that from other flowers on the same spike, but in only one case was the ovary in any way affected—*i.e.*, where a flower of *O. triumphans* had been fertilised with pollen from another flower on the same plant, and in this instance the development only lasted for a week or two, and the capsule then collapsed as in the previous case. These experiments were interesting as proving what Darwin and others have recorded—namely, that pollen often has the power of affecting the ovary, though it cannot influence the ovules, and cases have even been described where the ovules too have been effected, but no embryo produced. Experiments were tried with several other *Odontoglossums*, but without success, except in one instance, between *O. Cervantesi* and *O. Rossi majus*. A flower of the former was fertilised with pollen from *O. Rossi majus*; on March 29th, 1888, a capsule was produced, which slowly developed and ripened until June 30th, 1889, when it commenced dehiscing. The pod was then removed, and was found to be packed with minute seeds, which when examined under a glass appeared to be perfect. In the course of the following week the seed was sown, and now a few diminutive seedlings are just visible. The reverse cross failed to produce any result, and in any case the seedlings from such parents are not likely to possess any special merit even if they survive, which is doubtful.

The subject is a tempting one to pursue still farther, but I have said enough, perhaps too much, and I will now leave it to others to extend the hints I have attempted to furnish.

REGRAFTING ORCHARD TREES.

THE advice sometimes given in respect to totally removing trees of inferior varieties might well be modified in favour of the plan of cutting back and regrafting with superior Apples or Pears, as the case may be. In this way whole orchards might be gradually improved in character and value without the loss of a season. It is not advised to cut large trees hard back to near the trunk, but the greater portion of medium sized branches may be sawn cleanly off, when all danger of severe frosts is past, to near the main limbs, and each be eventually grafted with a fresh variety. The more fresh grafts there are inserted all over the trees the quicker will a full bearing state be arrived at. Such measures should be promptly decided upon, in order to be well in advance instead of a few seasons behind the numerous orchards recently formed in this country. Not till the sap is rising should the grafting be done, though the stocks may be prepared in advance of this, while the scions or grafts ought to be taken off the parent trees now or very soon, in order to retard the movement of sap, as it is necessary for them to be a few days behind the stocks. The strong branches of superior varieties cut from vigorous trees now being pruned ought to be saved, kept separated, labelled, and bedded in moist cool ground till they are wanted for grafting purposes.

The selection of varieties for grafting on other trees ought, to a certain extent, to depend upon circumstances, or whether the produce is required for home consumption or for marketing purposes. In the former case a constant succession may be desirable, but for sale the early and late varieties are usually found to be the most profitable. It is useless to attempt to sell Apples at a time when nearly every owner of a garden or orchard has abundance and to spare, this being principally in September and October. Therefore regraft inferior varieties with Lord Suffield, Keswick Codlin, Stirling Castle, Cellini, Ecklinville Seedling, and Cox's Pomona, these being heavy cropping, large fruited, culinary varieties, that can be sold readily direct from the trees; and of dessert varieties, to be similarly sold, the best are Worcester Pearmain, Red Joaneting, Mr. Gladstone, Beauty of Bath, Kerry Pippin, Irish Peach, Red Quarrenden, and Summer Golden Pippin. The most valuable keeping culinary varieties are Warner's King, Grenadier, Loddington, Lane's Prince Albert, Wellington, Beauty of Kent, Tom Putt, Reinette du Canada, Lady Henniker, and Annie Elizabeth; while Blenheim Orange, King of the Pippins, Cox's Orange Pippin, Bramley's Seedling, Sturmer Pippin, and Court Pendû Plat are excellent dessert Apples for storing, high prices often being obtained for them during the winter. The following are good orchard Pears, and might well be grafted on inferior stewing

or perry sorts:—Doyenné d'Été, Jargonelle, Williams' Bon Chrétien, Hesse, Beurré d'Amanlis, Souvenir du Congrès, all to be sold direct from the trees, and Durondeau, Pitmaston Duchess, Duchesse d'Angoulême, Louise Bonne of Jersey, Beurré Superfin, Beurré Hardy, Eyewood, Beurré Clairgeau, Beurré Diel, and Beurré Rance, all of which must be stored for a time.—W. I.

[This is the first time we have seen Bramley's Seedling described as a dessert Apple, though we know some persons enjoy it in an uncooked state.]



VANDAS AND THIRIPS.

VANDAS, *Aerides*, and *Saccolabiums* are soon injured by fumigation with tobacco to eradicate thrips. The employment of strong tobacco smoke often accounts for their pale green, sickly yellow appearance. If thrips appear, whether yellow or black, it can be destroyed without recourse to such treatment. We lift the plants attacked carefully, a small cloth is placed over the moss to prevent active insects entering it. The plants one at a time are placed at one end of a tank in a sloping direction in which is a solution of tobacco. The plant is shaken or tapped gently; many of the insects fall into the solution below. Tobacco powder is then dusted into the axils of all the leaves, as well as the heart of the plant. The cloth is shaken into the tank and placed on another. If the plants are stood by themselves and carefully attended to for a few days this troublesome pest can soon be destroyed. The powder at the end of two or three days should be thoroughly washed from the axils of the leaves, and especially from the centre of the plant, being careful not to injure any of the foliage.

MOSS FOR POTTING FROM COLD SHEDS.

It is a mistake to leave moss in cold sheds until it is needed for potting and top-dressing. What is wanted for the day's work, whether of peat or moss, should be placed in the structure in which it is to be used the night before. If it is not laid too thickly together it will be thoroughly warmed by the morning ready for use. Slight checks often result from carelessness in having the potting material many degrees colder than the temperature of the house in which the plants are grown. A good supply of moss should be picked and cut in readiness, so that it only needs carrying to the place where the plants are to be repotted. Some trouble is required to eradicate slugs which are introduced with the moss. We take the precaution of spreading out thinly a good quantity on the floor of the house, and then give it a thorough soaking with water at a temperature of 200°. The moss is then left to dry again, which it quickly does if a suitable place is selected for it.

We spread it on a path below which are some of the main pipes, and it dries quickly again and is ready for use. Even with this treatment we have not succeeded in clearing out all the slugs or their eggs. They have appeared shortly after potting, but by a soaking of hot water hundreds have been driven out at different times. Sometimes the moss is much more infested with slugs than at other times. Almost constant attention is needed to eradicate slugs after potting, but if this is done a good deal of trouble and annoyance during the remainder of the season is avoided.

PLACING THE ROOTS IN POTS AND BASKETS.

Beginners in the culture of these plants often try to compel the roots to enter the material provided for them. Those that manage for the time to flourish outside the pot or basket are frequently broken and destroyed by cramming them amongst the compost during the work of repotting or rebasketing. We have often seen plants in this condition, and have turned out many that have undergone this treatment, with the result that the bulk of the roots had perished. *Vandas*, *Aerides*, and *Saccolabiums* especially delight in having their roots in the moist atmosphere of the house. It is a mistake to try and compel the plants to confine their roots to the limit of the pot or basket. These plants vary considerably in their method of rooting and the quantity they make. If we examine two *Aerides*—namely, *A. Lobbi* and *A. virens*, we find the former inclined to root within the basket or pot to a large extent, a few roots only extending beyond. In a pot this plant is more inclined to push its roots outside than when growing in a basket. This is undoubtedly due to the roots being more fully exposed to air and the moist atmosphere of the house

than those in a pot. *A. virens*, whether in a pot or basket, will have its roots outside. Good healthy plants 18 inches high in baskets will often have roots 4 feet or so in length. Plants in this condition are, as a rule, in the best of health and grow freely, root abundantly, and flower profusely. Those throwing out their roots in abundance in the atmosphere should be grown in baskets where they can be suspended. When grown in pots their roots are always liable to injury.

PLANTS THAT HAVE BECOME BARE AT THE BASE.

Plants of both *Vandas* and *Aerides* may often be seen bare at the base of the stems. Sometimes one or two suckers start, and these should be carefully preserved until the top portion of the plant can be removed. Before this can be done the bare stem must be bound with sphagnum moss up to the leaves and kept moist. This assists the plant wonderfully in making roots above, and when a good portion has been made the plant may be cut off just above where the suckers have issued, and the bare stem can be removed and the top potted or placed in a basket. The top should be taken off just preceding root action and growth. If treated similar to healthy imported plants they will soon establish themselves and grow freely before the end of the season.—ORCHID GROWER.

NOTES AT FOREST HILL.

MESSRS. J. LAING & SONS' nurseries at Forest Hill are always worth a visit, and though their great season is "the Begonia time," yet there are so many specialties, all equally noteworthy, that some attraction is sure to repay a caller. In the spring months the bulbs and forced plants are in strong force, and they have now been rendering several houses gay for a long time. Excellent *Primulas* also have occupied considerable space; *Imantophyllums* are advancing, and the collection, which is being enriched by numbers of home-raised and introduced novelties, is a remarkable one, the plants all in superbly vigorous health.

TUBEROUS BEGONIAS.

The Tuberous Begonias are in a very youthful stage at present, and needing all the experienced care of Mr. Laing's skilful growers to bring them to their annual state of perfection. It is surprising what strong plants can be obtained from seed in a few months by due attention and the best culture. When sturdy bushy specimens are planted out in the summer, to be in a few weeks covered with brilliant flowers, it seems scarcely possible that they could have been raised from seed in the same year. Yet there we see them, tiny seedlings in various stages, being pricked out from the seed pans into larger pans, to be afterwards potted, and then transferred to the grounds or reserved to adorn the houses. Everyone knows what has been done with Tuberous Begonias at Forest Hill. The record is a triumph of the hybridiser's skill, and the still rapidly extending popularity of the plants has been well earned. A large piece of land has been prepared for the Begonia beds this year, and I cannot say how many thousands of plants will be needed to fill the space and supply the demands, the number certainly must be a very large one. Garden owners and cultivators are beginning to find the merits of Tuberous Begonias for bedding purposes, and their decorative value under glass has been abundantly proved.

CHRYSANTHEMUMS.

Another great feature is formed by the Chrysanthemums, which seem to be scarcely less numerous than the Begonias; at least, several houses are filled with a series of long frames, the young stock of all the leading varieties being extremely large. Messrs. J. Laing & Sons have been fortunate in past years in raising some seedlings of great merit, which have already taken a high place amongst exhibition varieties. With the hope of continuing their success they have obtained a quantity of seed from various sources, and now some hundreds of healthy young seedlings are advancing satisfactorily, and will be watched with much interest. There are, however, a few seedlings that receive especial attention and are of unusual importance. These have been raised from seed of the Japanese variety *Edwin Molyneux*, ripened at Forest Hill, and it is scarcely necessary to say that the plants will be reared with all possible care, and it may be fairly expected that should they reach a flowering stage Mr. Laing will amongst them secure a prize worthy of the centenary year.

Most of the members of the Laing family have been honoured by Continental raisers in the names of the Chrysanthemums sent out in recent years; but in some notes a season or two since I pointed out an unaccountable omission. M. Délaux has now completed the family, and has announced *Madame Rose Laing* as a distinct novelty of the Japanese type. The variety has been described in a continental journal as charmingly attractive; the florets flat, rosy crimson and white, tipped with gold; the tints darken at the centre of the bloom, and silvery white towards the centre of the florets, a novel colouring quite distinct from other varieties.

ORCHIDS

The collection of these plants steadily increases, all the most useful species and varieties being added, and they thrive well in the Stanstead Park houses. *Dendrobiums* are excellent, particularly *D. Wardianum*,

which makes usually strong pseudo-bulbs. *Cattleyas* have been furnishing a fine bank of flowers for some time past, and one grand variety of *C. Trianae* was certificated at the last meeting of the Royal Horticultural Society. Cool house Orchids, especially *Odontoglossums*, are well grown, and good varieties of the principal species are included.

Respecting the large miscellaneous collections—*Caladiums*, *Camelias*, *Lapagerias*, &c.—it is not necessary to say much now, but one little plant that has been flowering through a good portion of the winter (*Acacia ovata*) deserves a special note. A small spray of this is represented in the woodcut (fig. 31), which shows its characters fairly. It is most useful for culture in 48-size pots, being of dwarf bushy habit,



FIG. 31.—ACACIA OVATA.

and producing its bright yellow flower heads freely. The plant is easily grown, readily forced, stands well, and is altogether exceedingly useful, being more graceful than the early *Acacia platyptera*.—L.

LANDSCAPE GARDENING.

[Read at a meeting of the Cardiff Gardeners' Association by Mr. Kettlewell.]

(Continued from page 225.)

I NOW come to the second portion of my paper, and that is to offer a few remarks about some of the leading departments in a garden, and I will begin by giving a few suggestions as to the flower garden. A flower garden, or if there be no flower garden the flower beds, should be situated on the warmest and most private side of a house facing the drawing-room windows, as the beds give an air of beauty and gaiety in summer when filled with masses of brilliant flowers, while dwarf evergreens, which have been kept in pots and plunged during the summer in some reserved nook in the kitchen garden, can be most effectively

and successfully utilised to take away the bareness which a flower garden or flower beds have in winter. It is surprising what a pleasing effect can be obtained in flower beds by the careful arrangement of shrubs in pots, and with what little trouble and expense, since they only require repotting once a year, and watering a little during the driest part of the summer. If this mode is not adopted a good effect can be obtained during all seasons of the year, whether the beds are filled with masses of brilliant flowers during summer or bare during the winter by the judicious distribution of dwarf specimen evergreens.

Perhaps at this point in my paper the list of a few shrubs suitable amongst others for one or both of the modes above mentioned may be of some interest and value to my readers:—*Andromeda floribunda*, *Yucca gloriosa*, *Erica carnea*, *Rhododendron hirsutum*, the variegated Yew, the variegated *Aucuba*, *Retinosporas*, the Tamarisk-leaved *Savin*, *Pernettya mucronata*, variegated *Euonymus*, Hollies of kinds, and *Gaultheria procumbens*.

The beds of a flower garden should be symmetrical and correspond. The more simple the shape of the beds the easier are they to keep in order, and the better for exhibiting the arrangement of flowers. No beds should be made too large, as they then become difficult to attend to; nor the space between too narrow, lest they become in time inaccessible or the flowers in the beds intermixed. Grass laid evenly in broad strips 2 feet 6 inches to 3 feet in width is the most effective division between flower beds, as it sets off the colours of the flowers best and imparts an air of unity to the whole design.

Flower beds ought never to be scattered at random over a lawn, but should always form some regular figure, except in the case of a few beds by the side of a walk. In designing a flower garden, regular figures such as squares, ovals, circles, parallelograms are much more effectively and easily filled, though the ground, by a judicious distribution of beds, can be adapted to almost any shape. In conclusion, one golden rule should always be borne in mind by practical designers of a flower garden, and that is that the chief object of a flower garden is "to display flowers to the best advantage;" however ingenious, however tasteful a design may be, unless this golden rule is strictly adhered to it is of little or no worth.

ROSE GARDENS.

I now come to the second leading department in my list, and this is the rosery, or Rose garden. In gardens of medium or large size Roses are often collected together and placed in a small separate space. This should be in a sunny position, but sheltered from the wind as much as possible, and severed from the lawn and the rest of the garden by a screen of shrubs, as it is as uninteresting in winter as it is brilliant in summer. The design of a rosery should be of some regular shape, the beds simple yet bold in their outlines. Circles, oblongs, ellipses, are perhaps the most useful. As regards the beds of the figure, on no account should acute angles or corners be allowed, as portions of the beds would be practically rendered useless, and the whole design or figure would appear meagre to the eye. Moreover, few plants could be inserted in them, and those but imperfectly. The beds at the same time should be sufficiently narrow, to allow the centre plants to be easily reached from either side of the bed, and for this reason oblong beds with the ends rounded off are perhaps the most suitable. The greater the simplicity of the beds of a rosery, as in a flower garden, the more suitable are they for showing off the Roses.

With reference to the walks of a rosery, the path round the outside of the figure should be of gravel, while the divisions between the beds of the figure should be of grass, 3 feet to 4 feet in width, or of gravel with Box edging, so that admirers of these beautiful flowers may easily examine or pick them. Grass, however, will always look better than gravel, and when it is used not more than one or two cross walks of gravel and an encircling one will be necessary. Great effect can be obtained by throwing across a walk at the entrance to a rosery a light covered archway made of wire, with some of the more beautiful climbers trained up it. Another most effective, and at the same time uncommon adjunct to a rosery, is a Rose house or temple. This is a structure having a light span roof, glazed nearly down to the ground at the sides, with ample facilities for ventilation, and if possible pipes for heating it in winter. Light iron pillars or arches can be erected inside for the support of the more tender climbers, and beds can be formed inside to receive and cherish the Tea-scented and other tender Roses. Before passing on to the next important department in a garden I would say that it would be an invidious task to attempt to give a list of Roses, considering that you all probably know many more kinds than I do myself; but I would make this suggestion, that a very pretty effect can be obtained by placing one class or tribe in each bed, such as beds of

Provence Roses, Hybrid Perpetual Roses, Hybrid China Roses, Bourbon Roses, Moss Roses, or Noisette Roses.

KITCHEN GARDENS.

I should like now to say a few words on that most necessary department, the kitchen garden. Where practicable this should be within easy and direct communication of the rear of the house, and on no account—except in peculiar cases, such as town gardens—should it be necessary to go through the pleasure grounds in order to reach the kitchen garden. The reason of this is simple. The kitchen is generally at the back of a house, and the kitchen garden exists for the purpose of supplying vegetables and other necessaries used in the kitchen, and should therefore be as near it as possible. The stables should also be near, so that the refuse and manure may be readily carted to the ground.

Perhaps the best shape for a kitchen garden is a parallelogram, the longest sides being from east to west in order that a greater length of wall facing south may be obtained. Any regular figure, if a parallelogram is not practicable by reason of either the space available or the formation of the ground, is the most suitable for convenience sake; the walks, beds, and borders being in straight lines as much as possible and at right angles to each other. Every kitchen garden should be walled in at least on three sides; firstly, in order that it may be warmer; secondly, in order that the walls may be a means of growing many of the better kinds of fruit trees. The wall facing south should be built to a height of 12 feet with a coping projecting over 3 or 4 inches, the side walls the same height or a little lower, the wall facing north, if there is one, 5 or 6 feet. If, however, an entire enclosure is thought unnecessary, a hedge of Box or Yew kept to the uniform height of 6 or 7 feet will prove more picturesque.

A border all round the inside of the kitchen garden is requisite, varying according to the size of the garden, from 6 to 12 or 14 feet; these borders, however—and this is a matter very little thought of—should not have more than 3 feet of rich alluvial soil, as they then become unsuited to the growth of fruit trees since the roots pass away too far from light and air, two essential requisites to the healthy growth of a plant. A good plan is to place a layer of stones or rubbish below that depth. Perfect drainage is a matter of the utmost consequence in a kitchen garden, and one that must be also thought of if fruit trees or vegetables are to be grown with success.

As a good deal of water is often required in a kitchen garden an open cistern or ornamental tank is advisable, or a pump with an open cistern, as water is much more suited for plant life after being well exposed to the action of the atmosphere. At the back of the garden, or in some out of the way place close to the kitchen garden, there should be one or two sheds for tools and other uses, and a small yard accessible to a horse and cart for rubbish, manure, and the various composts used in planting.

The next important question to which I would call your attention is that of water. This is an element of great beauty in a garden when treated with taste, and adds life with a certain degree of dignity to the scenery. In forming small sheets of water in a place of limited extent simplicity again should always be studied. Circular or octagonal basins, with or without fountains, are perhaps the best in formal gardens, while in the mixed or gardenesque style, where a closer approach to Nature is sought, roundish or oblong pools are the most suitable. If, however, larger sheets of water are being treated—and now we come to lakes—then the shape may be more varied and irregular, so that the whole may not be seen at the same time, and by a tasteful treatment of its terminations considerable indefiniteness may be obtained. Numerous or unnecessary curves or bays are, however, decidedly out of place, as they destroy the appearance of breadth except in large lakes, where a much bolder treatment may be adopted.

Planting is another feature in relation to water which requires taste and skill on the part of the landscape gardener to ensure success. What an amount of colouring and variety of scenery can be obtained by the careful and tasteful distribution of trees or shrubs, whether singly or in masses. A sheet of water entirely shaded by trees would tend to render the water impure and stagnant, rob it of the glitter, the sparkle, the capacity for reflecting objects, which constitute some of the most agreeable attractions, while on the other hand a sheet of water without any planting would look crude, bare, and distasteful. It is then, as I said above, by the tasteful and appropriate planting of the margins of a lake that the many pleasing features of water can be effectively displayed.

Smoothness in the finish of the banks is essential, the turf being laid 6 to 8 inches below the margin, so that there may not be any hard line

of earth visible between the surface of the water and the grass. There is one exception to this rule, and that is where in secluded parts of the lake the banks are naturally precipitous, then great variety may be obtained by partially broken ground with Heather and rough grass, jutting rocks, old stumps of trees, and if there be a stream or brook running into the lake on that side, additional beauty and picturesqueness may be obtained by miniature waterfalls and cascades. This treatment, however, to be successful requires consummate taste and ingenuity.

(To be continued.)

LAPAGERIAS.

THERE can be no doubt that these plants will bear low temperatures without injury, and a slight frost reaching them when grown under glass does not appear to injure them in the least. But in houses where the winter temperature is low, and the house is also kept as cool and airy as possible in spring, the plants are placed at a great disadvantage in comparison with those that are accorded more genial treatment.

Under cool treatment throughout the year, or during the earlier months of the year, Lapagerias are naturally late in starting into growth, which largely influences the flowers they produce. The wood has no time to mature thoroughly, the flowers are late and do not possess that bright colour and size characteristic of good forms of *L. rosea*, while its companion, *L. alba*, is too often tinged with pink instead of being pure white. Late flowers of the last named, produced under cool autumn treatment, have in addition a greenish tinge that mars their beauty.

To grow Lapagerias freely, strongly, and rapidly, the structure in which they are accommodated should be kept close and moist from the present time, with a night temperature of about 50°. The conditions favourable for starting Azaleas and Camellias into growth after they have flowered are suitable for Lapagerias. They soon start into growth; in fact, if the temperature of the house in which they are growing has ranged from 40° to 45° throughout the winter, they will be ready for bursting at once into growth, and strong shoots will soon commence to issue from the base. By assisting them to make their growth early their shoots lengthen rapidly, and partially mature the foliage before the sun gains much power and shading becomes necessary. Cold draughts cause the young tender shoots to flag nearly as much as bright sunshine does, therefore little ventilation is given before April, when it may be gradually increased until greenhouse treatment is given them from the middle to the end of May. The plants have thus a longer season of growth and abundance of time to mature their wood thoroughly. This is important if they are to bear flowers freely, large and bright in colour, or of the purest white. Gentle warmth, even during the close of the flowering season, will prevent their coming green or tinged with pink. This is certainly the result of a low temperature. The plants increase much more rapidly in size by the gentle assistance advocated than they are capable of doing by the cool airy treatment too often given them.

Where Lapagerias can be planted out they make greater progress than in pots. This is not because they like a large amount of soil for their roots to ramble in, but because they are not exposed to the same drying influences as in pots. Their roots require a cool position where a uniform condition of moisture can be maintained without having to be continually pouring water into the soil. In selecting a place for them, hot-water pipes, or anything else that may tend to unduly dry the soil, should be avoided. Tubs decay, or they would be better than pots, because they do not dry, however rapid evaporation may be, quickly enough to be a source of danger to the roots. Probably the next best method is growing them in large pots, and plunging these to the rims to prevent evaporation.

The soil in which Lapagerias will flourish is not so important as many suppose, for I have seen them luxuriate in a variety of composts. A safe mixture, however, is good fibry loam and peat, broken up with the hand and used in equal proportions. To this add a liberal quantity of coarse sand, a few half-inch bones, a 7-inch potful to each barrowful of soil, as well as sandstone broken up. The latter we prefer, because the roots cling to it tenaciously, and it keeps the compost sweet and porous. Press the soil moderately firm, for the plants do better in it than when it is light and spongy, which necessitates frequent applications of water. When the plants are limited to pots a greater percentage of peat may be used, or all peat, which remains in a sweet condition for a longer period than a mixture of peat and loam.

Good drainage is absolutely necessary, but the border in which they are growing should not be over-drained. Although they like moisture in the soil about their roots they cannot endure it in a

stagnant condition. When the border is limited in size, and it is once well filled with roots, rich top-dressings are necessary. The surface should be annually removed down to the roots and good fibry loam supplied, with one-seventh of decayed manure, which will be found to assist them wonderfully.

The shoots are generally trained upright, especially strong suckers that issue from the base, and on the whole this is probably the best means of training them; in fact, strong shoots should be trained after this fashion the first season and allowed to extend as much as possible. Strong shoots from vigorous plants will travel yards in a season. If left in this position they will break freely, and make a spreading head towards the extremity. They may be allowed to do this with advantage. But when there is space to fill time is lost, and the progress of the plant sacrificed by allowing them to remain in this position after the second season. Few, if any of the lower eyes will burst into growth, they may remain dormant for years. Shoots of this nature, or old strong shoots that may have been trained upright, will produce a number of strong growths that will extend rapidly if they are laid horizontally at the base, and the weaker shoots at the top trained upright. Plants that are bare at the base will quickly be furnished with strong flowering wood by this simple process.

It is necessary to syringe the plants frequently to keep bare old stems practically moist for a time, until the buds swell and burst. A free use of the syringe is an advantage to the plants during the whole of the growing season, and should be discontinued only after the completion of growth until flowers are visible, when it may be continued until they show signs of expanding. If all the flowers are gathered a good syringing will prove beneficial. At the present time, on bright days, the syringe may be used twice daily, once will be ample on dull days. In May the syringe is used in the middle of the day as well as in the morning and afternoon. If young growths display signs of flagging during hot weather the syringe is used, and they soon revive. Little need be said about watering, suffice it that at no season of the year should the soil become dry. During the season of growth liberal supplies are needed. If once the border is full of roots weak stimulants may with advantage be given every alternate time they need water during the season of growth. Fresh cow manure placed in a tank with a bag of soot is a capital stimulant. It should be given in a clear state, or strained through fine tiffany and well diluted with water. At this season of the year the water needed at the roots and for syringing should be slightly warmer than the temperature of the house.

Pruning is rarely practised with these plants, although a little is requisite each season. This should consist of cutting back the shoots that have flowered to a good eye. It keeps the plants free from dead and dying shoots, which would be the case if that portion which flowers is not removed. This is all the pruning needed until the plants have filled the roof or the space allotted to them. It is a mistake, then, to allow puny growth to crowd the roof, and a judicious system of thinning should be practised. The shoots selected for removal must be cut back to a good eye, and by this method the space can be kept furnished with strong robust shoots that will flower freely and produce finer blooms than weak, short, stunted growths are capable of doing. If Lapagerias are thoroughly established they will bear more pruning than many suppose, and with advantage. Plants that make scarcely any growth annually generally flower profusely, too freely in fact, and they are much enfeebled. They may be restored to vigour by pruning. This is the only means of saving them, for if allowed to continue flowering they become weaker, and finally dwindle and die.

Nearly all the pests that infest plants will attack Lapagerias. Aphides are partial to them, but these are readily destroyed by fumigating with tobacco. Thrips are troublesome, but if the plants are freely syringed these will be kept in check. When established upon the plants fumigate with tobacco smoke two or three nights in succession, or thoroughly syringe with tobacco juice freely diluted with water, to which may be added half an ounce of soft soap to each gallon of water, and a piece of common washing soda the size of a cob nut. We prefer this to fumigating, only it renders the woodwork of the house unsightly. A solution of any of the insecticides recommended for the destruction of thrips may be used. It should be eradicated at once, for it quickly destroys the foliage and brings the growths of the plants to a standstill. If thrips appear when the foliage is firm and leathery a weak solution of petroleum and water, 2 ozs. to 3 gals. of water, will soon destroy it without injury to the plant. The same solution will destroy scale, from which the plants can soon be cleared if they are syringed two or three times in succession during the period of rest. Mealy bug is more difficult to deal with; it secretes itself behind the scales that protect the buds and cannot be reached with the syringe. Patience and perseverance in battling with it are the only means by which it can be exterminated.

Shade is necessary during bright sunshine. At first for a few hours daily, but during the months of June, July and August it is well to keep the blinds over the plants during the greater part of the day where they are grown in a structure facing south. As the growth matures it should be gradually discontinued, and dispensed with altogether by the end of September or early in the following month.

Where Lapagerias are grown for ornamental purposes, *L. maculata*, a pink variety beautifully marbled with white, should find a place. It is a strong grower with large bold foliage, and is sufficiently distinct from *L. rosea* to warrant me in saying it will become quite as popular. For market purposes the white form only is valuable.—WM. BARDNEY.



EVENTS OF THE WEEK.—On Saturday, March 22nd, a meeting of the British Fruit Growers' Association, in conjunction with the local Horticultural Society, will be held at the Town Hall, Ellesmere, Salop, at 7 P.M. The Royal Horticultural Society's Committees will meet in the Drill Hall, James Street, Westminster, on Tuesday, March 25th, at 12 noon, and the Royal Botanic Society's first spring Show of the season will take place on Wednesday, March 26th.

ROYAL HORTICULTURAL SOCIETY.—At the last general meeting of the Society, Rev. W. Wilks, M.A., in the chair, the following were elected Fellows:—Thos. Barton, Rev. Thos. Bates, E. Bridges, M. Cammell, Thos. Christopher, Alistair Clark, Esq., Mrs. John Clerk, J. Cobb, Geo. Colville, Jas. Crute, Hon. Hy. W. Fitzwilliam, Henry Fordham, C. W. B. Greaves, A. C. Harcourt, H. P. Harris, John Hart, S. Flower Jackson, Rev. A. Johnson, E. H. Jones, T. Wickham Jones, Jas. H. Laing, John A. Laing, F. F. Lambert, H. V. Machin, O. C. Marston, R. A. H. Mitchell, G. Munro, Mrs. Newton, Miss Nisbet, G. T. Partridge, H. G. Quilter, J. Roberts, Miss Frances Schreiber, Rev. John Sinclair, J. G. Smeaton, Edward Waltham, Mrs. H. Ward, F. Watson, Wm. Weale. Associate, W. G. Baker.

HALL FOR HORTICULTURE.—At a meeting of the "Sites Committee," held on Monday last, it was resolved to call a great meeting, of which due notice will be given, of horticulturists and the horticultural trades throughout the kingdom, when the whole scheme and present position of affairs will be fully explained. The Committee hope that the trade, upon whose attitude much depends, will see that it is to their interest to popularise horticulture and take the matter up with spirit, and that a large number of gentlemen commercially interested in horticulture both in London and the provinces will attend, as the scheme will benefit the latter nearly if not quite as much as the former.

THE HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* took place on Tuesday, March 11th. Dr. Hogg, in the absence of Mr. John Lee, presided, and there were present the Rev. W. Wilks, Rev. F. H. Gall, Messrs. T. W. Girdlestone, J. H. Veitch, A. Veitch, George Bunyard, H. J. Pearson, C. E. Pearson, T. Francis Rivers, C. T. Druery, &c. The subject for discussion, Plant Hybridism, was opened by a thoughtful and interesting paper by Mr. Lewis Castle, read in his unavoidable absence by Mr. George Bunyard. Mr. Veitch dealt with the subject in relation to Orchids, Mr. Druery to Ferns, Mr. C. Pearson to Pelargoniums, and Mr. Rivers to fruits, while most of the members present joined in the discussion, and a very interesting and profitable evening was spent.

NATIONAL ROSE SOCIETY.—We understand that it has been determined by the Committee to alter the date of the annual dinner to June 24th, the day on which the exhibition of Tea Roses will be held at the Drill Hall. The dinner will take place at the Hotel Windsor at six o'clock, and the chair will be taken by the Very Rev. the Dean of Rochester.

THE DUTCH HORTICULTURAL SOCIETY.—At the meeting of February 12th, 1890, Messrs. E. H. Krelage & Son at Haarlem sent a *Narcissus tazetta* called Grand Emperor, and a collection of bulbous and tuberous plants (vote of thanks). Honourable mention was

accorded to the same firm for a collection of cut flowers of different varieties of *Helleborus*, and for a *Helleborus Bocconi superbus*. *Iris Bornmulleri* from the same firm was awarded a second-class certificate. First-class certificates were awarded to Mr. R. Zaadnoordyk at Limmen for a new Tulip belonging to the group *Duc Van Thol*, and exhibited under the name of *Cochenille Duc*. This Tulip is distinguished by a dark red colour and extraordinary large flowers. A similar award was made to Messrs. Groenewegen & Co. at Amsterdam for an *Imantophyllum robustum elegans*, very robust in habit, and having large well-shaped dark coloured flower.—H. C. ZWART, *Secretary*.

— THE WEATHER IN THE SOUTH OF ENGLAND has been unusually fine during the past week. Bright sunny days, almost summer-like in temperature, have been the rule, followed by clear nights and slight morning frosts. Many plants and shrubs seem to have suffered severely by the recent sharp frost, Rose shoots especially being much cut.

— THE WEATHER IN THE NORTH.—March 10th to 17th. With the exception of 2° on the morning of the 14th there has been no frost during the week, dull and drizzly weather generally prevailing. At 9 P.M. on the 12th the thermometer stood at 50°. The 14th was fine and bright, and the morning of Sunday 16th was very mild and pleasant till mid-day, when it overcast and a good deal of thunder was heard in the distant S.E.—B. D.

— GARDENERS' ORPHAN FUND.—A number of growers of flowers for Covent Garden Market met the Committee of this Charity on Friday night last, and the meeting, under the presidency of Mr. G. Deal, unanimously accepted the Duke of Bedford's kind offer of the wholesale flower market for the purpose of a great Floral Fête on behalf of the Fund. It was decided to provide an unequalled display of plants and flowers on the evening of May 21st. The Lady Mayoress, accompanied by the Lord Mayor and city dignitaries, will attend for opening the Exhibition. Sixteen gentlemen, representing the growers and standholders of the market, were appointed to co-operate with the Committee of the Fund in making the necessary preparations for achieving what is hoped and expected will prove a brilliant success.

— SPOT ON PELARGONIUMS.—I had a number of plants spoiled by "spot" last season; they were healthy up till the time of potting, but after that they began to look bad, and had the appearance of having been sprinkled with hot water. I tried every means in my power, but to no purpose. I came to the conclusion that some old leaf mould which had been mixed with the potting compost was the cause of the mischief. When some of the plants were turned out I found many of the roots quite black and decaying; when the plants had been ripened I pruned them in hard, and when they had started to grow I shook them out and cut off all the discoloured roots, placing them in as small pots as possible, using a mixture of fibrous loam and sand only. They look well now, but are not quite clear; they have just been placed into their largest pots, the same compost being used as at the first potting, with the addition of half-inch bones. Should the spot again prove troublesome can any of your readers give me a remedy for it? The plants were most carefully watered; the fault is not in that direction.—C. RUSSELL, *Ingmire*.

— IN addition to the plants which have been named in recent issues of the Journal for covering the back walls of vineries, I might make mention of one which I have found a very effective covering, and exceedingly useful as well, that is *MIRSIPHILLUM ASPARAGOIDES*. I planted it along the back wall of a vinery here last season, and trained it up by simply tying small strings to the bottom and top wires. The shoots soon took to these, and no more attention was required in the way of training. It is astonishing how closely the shoots keep twining themselves round the string, though resting against the intermediate wires. In no case did a shoot get behind a wire or twist itself round one, so that I cut any number of shoots up to 11 feet in length beautifully covered from top to bottom with its glossy foliage. The strings can be easily drawn out when the shoot is cut. These long sprays are simply invaluable in table decoration, as they can be twisted about in any form desired. I am just now preparing sufficient plants to do other five or six houses in the same way. The plant is easily raised from seed, and it is not yet too late to sow it. After it is established it keeps throwing up young shoots year after year. I cut twenty dozens of those long sprays during the Christmas week. Anyone who has much house and table decoration to do can easily understand what the value of those would be at such a time.—JOHN GARRETT, *Whittinghame Gardens, Prestonkirk*.

— THE SCOTTISH PANSY SOCIETY'S SHOW is announced to be held in George Street, Edinburgh, on Friday, June 20th. The Secretary is Mr. McKennan, 144, Prince's Street.

— *The South Oxfordshire News* for March 15th contains a portrait of Mr. JOHN WALKER OF THAME, with an account of his life and a description of his business. It is said that he commenced in 1846 with "20 poles of ground and a two-light frame."

— GARDENING APPOINTMENT.—Mr. Milner, for the last twelve years gardener at Sundorne Castle, succeeds Mr. Joseph Kinch as gardener to Miss Talbot, Penrice Castle, Swansea. Mr. Kinch went to Penrice from Margam recently and died suddenly. He leaves a widow and five children, one of whom we believe Mr. J. Muir contemplates nominating for election on the Gardeners' Orphan Fund.

— THE fourth Exhibition of the SCOTTISH PRIMULA AND AURICULA SOCIETY will be held in the City Assembly Rooms, Shore Terrace, Dundee, on Thursday, May 8th, 1890. Twenty-four classes are provided in the schedule, with prizes from 2s. to 20s. Mr. John Morris of Dundee offers 10s. "for the best named seedling (stage self) never before entered for competition." The Hon. Sec. and Treasurer is Mr. William Straton, Annfield Broughty Ferry.

— I READ with much interest Mr. Collier's article on the TUBEROUS BEGONIA, page 180, but I think he is a little behind the times when he says that Begonia seed sown in January will give us a few flowers the first year. Perhaps he would be interested to know that we have sown Begonia seed in February, and the plants have furnished 7 and 8-inch pots by the beginning of September and continued to flower until the middle of November.—G. W., *Henbury Hill*.

— CHRYSANTHEMUM MRS. CARTER.—We are pleased to find our illustration of this variety on page 445, November 1st, 1889, appreciated, and we recognise the fidelity of the reproduction of it as applied to Alice Carter and Mabel Carter in a catalogue of the firm by which the varieties were introduced, but we do not observe any mention of the original engraving in connection with the copies. This is the more noticeable since the source of another illustration of a variety that was not introduced by the firm is very properly recognised.

— NARCISSUS SPORTING.—Mr. James Walker of Whetton, Middlesex, who grows "millions of Daffodils" mainly for the London market, occasionally has sports among them. The last which he showed us was an example of two distinct varieties flowering from one bulb, namely, Sulphur Crown and Incomparabilis plenus, both forms being admirably represented. These varieties, also Orange Phoenix, Mr. Walker says, appear to be of the same origin, and flowers of any one of them may, and sometimes do, come from the same bulb.

— THE ORIGINAL HESSLE PEAR TREE.—I have received a letter from Mr. Lord of Hessle, in which he refers to a matter which may be of general interest, and I therefore send you the following extract. "It may probably interest you to know that the first or original Hessle Pear tree is still standing in my landlord's garden just behind my house. It is hollow and worn out with age, but still has a little life in it. Its age I cannot say for certain, but it has been stated to be considerably over 200 years, some say 300 years." Our florists' Tulips are looking well.—H. R. MEIN, *Kilso*.

— BRAMLEY'S SEEDLING APPLE.—I daresay many readers of the Journal will be inclined to think that the qualities of the above were overrated. I confess that until last September I was of that opinion. I then saw several trees in an orchard at Halloughton, near Southwell, that justified all that has been yet written in its favour, and I do not think it possible for anyone to overrate its qualities as I then saw it. I have at different times and in different parts of the country occasionally seen trees bearing splendid crops of Apples, but I have never seen such immense crops, and at the same time such fine fruits, upon the same trees. If it were possible for me to accurately describe those trees as I saw them people would not believe my statement, and I feel confident I should not have believed a similar statement regarding them.—J. U.

— CARNATIONS AND THE SPARROWS.—Many plants which have been out all the winter have been attacked by the sparrows, and the centre leaves, and in many instances the heart of the plant, has been eaten away. A friend who is a well known amateur grower of Carnations and Picotees, had recently a day's potting into the flowering pots, and the next morning he found that the birds had "pegged away" at his plants, and hard runing had resulted. He at once used lines of

black thread, not glazed thread, on the plants as they were potted from day to day, and thus secured them from injury. Many persons will see that their plants are mutilated, and wonder what is the reason; and Crocuses especially could be protected in this way.—DIANTHUS.

— FORCED IRISES.—Anyone having overgrown clumps of Iris germanica in their herbaceous and shrubby borders, and doubtless there are many such, may reduce them, and find them very useful for cut flowers. For the last few years I have found them force easily. This year some were taken from the borders the end of January, placed on the floor of vinery at work, with a little garden mould to cover the roots, and at the present time we are cutting the flowers. Some more crowns are also brought in now, and these will come on much more quickly than those dug up in January. If varieties are numerous a clump of each may be dug up at the same time; it will give a succession better, and when flowering is past the plants can be thrown on the rubbish heap unless wanted.—A HARDING, *Orton Hall Gardens, Peterborough*.

— BRUSSELS SPROUTS.—Your Leeds correspondent appears to have been fairly successful with this vegetable. I am expected to have Brussels Sprouts ready for the first dish of partridges in September, and my plan is to sow in August about the last day in that month out of doors. The plants remain in the seed bed till the first week in April, and are then planted 2 feet 6 inches each way. They are simply kept clean by having the hoe frequently run through the ground during the summer, and on the 1st of September we can always gather firm compact sprouts. The variety we grow is Sutton's Exhibition. Another sowing is made the first week in April. From these we commence gathering the first week in November, and continue until March, when they begin to open. Still they furnish Greens up to the end of April, thus giving eight months' supply. I am trying another plan for comparison, and will record the result in due time.—H. F. E., *Hampshire*.

— BLACKBERRIES.—A few weeks since fruiting Blackberries were a subject of remark in the Journal, and a copy of the number containing remarks by "Rubus" was sent to Mr. Laurencé, at Harrisburg, U.S.A., and in a letter I have received from him he writes, "Rubus" should see the American Blackberry grown the right way, and although you have some of the best American varieties in England they have not become popular. They need 6 feet apart between the rows, and 4 feet between the plants. The secret of fruiting is in pinching out the tops of the shoots when 3½ or 4 feet high; then they throw out laterals, which should be pinched back to 10 or 12 inches, and good crops of fruit follow. They throw up canes like Raspberries, and the old ones are cleared out every year." As many persons planted these kinds I hope that some may be induced to give the Blackberries a further trial on the plan recommended above.—D. S. H.

— SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, FOR FEBRUARY, 1890. — Mean temperature of month, 37.7°; maximum on the 1st, 50.3°; minimum on the 6th, 23.3°; maximum in the sun on the 27th, 94.9°; minimum on the grass on the 6th, 17.2°; mean temperature of the air at 9 A.M., 36.6°; mean temperature of the soil at 1 foot deep, 38.8°; nights below 32°, in shade 11°, on grass 18°. Total duration of sunshine forty-six hours, or 17 per cent. of possible duration. We had eleven sunless days. Total rainfall 0.99 inch; rain fell on twelve days. Average velocity of wind, 7.5 miles per hour; did not exceed 400 miles on any day, and fell short of 100 miles on six days. Approximate averages for February—mean temperature, 40.2°; sunshine, fifty-six hours; rainfall, 1.63 inch. A cold dry month, only one really wet day. The temperature is over 4° lower than in January. We have now had cold and dry months of February for five consecutive years.—JOSEPH MALLENDER.

— AN EARLY HORSE CHESTNUT.—The Paris correspondent of a London daily paper says, "The famous Horse Chestnut tree in the Garden of the Tuileries, which is known far and wide as Le Marronnier du Vingt Mars, because, as tradition has it, its branches are always bedecked with tender leaves by that date, is acting its part to perfection this season. It must be confessed that this celebrated tree—which, at the approach of spring, is attentively scrutinised by numbers of eager Parisians on the look-out for some sign of verdure—now and then disappoints its admirers by failing to 'come up to time.' This year, however, in spite of the intense cold which prevailed at the beginning of the month, it is well to the fore, being covered with buds which are bursting and shooting in every direction. It has still four days for the completion of its toilette, and naturally the omen is regarded as propitious, for not long

ago there was considerable misgiving on this subject, it being apprehended that the fine old tree, the name of which is a household word in this metropolis, might be badly beaten by the 'enemy.' The weather, indeed, is extremely favourable to the development of leaves and buds, and already the Marronnier has not a few competitors which are running it rather close. A mild temperature with bright sunshine or light showers has worked wonders during the past few days."

— A LECTURE on "APPLES: THEIR CULTURE AND USES," was given by W. Roupell, Esq., at the British Workmen's Club, Upper Tulse Hill, to a large and appreciative audience on Friday, the 14th instant, for the benefit of the Gardeners' Orphan Fund. The Chairman, Buxton Morrish, Esq., after giving an account of the origin of the Fund, made a powerful appeal to those present to support so admirable an institution. Mr. Roupell then proceeded with his lecture, giving some practical details for the management of the trees, such as planting, pruning, cleansing, and renovating old worn-out trees, &c.; also the different uses to which Apples had and might be put. The lecturer, who had in front of him a collection of well preserved fruits, gave a list of suitable varieties to cultivate. During the lecture Mr. Roupell referred to the good that was likely to result from the establishment of the British Fruit Growers' Association, and spoke of the appeals already made to that body for help in isolated districts. The frequent and hearty applause testified to the esteem in which Mr. Roupell is held in his own neighbourhood.—E. B.

— THE fortnightly meeting of the READING GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION was held on Monday evening last. There was, as usual, a large attendance of members. R. D. Catchpool, Esq., occupied the chair. Mr. Richard Dean of Ealing read an interesting paper, entitled "The Wonderful in Horticulture." Some magnificent Orchids were exhibited by Mr. Pound, gardener to G. May, Esq., of Caversham, and were remarkable for their fine health and vigour. The most noticeable were *Phalanopsis Schilleriana*, carrying upwards of thirty fully developed flowers; *P. Stuartiana*, equally well flowered; a fine specimen of *Dendrobium nobile*, *Goodyera discolor*, and *Odontoglossum pulchellum*, all profusely flowered specimens. A fine plant of *Dendrobium Wardianum* was exhibited by Mr. Woolford, gardener to A. Palmer, Esq. The Secretary announced that he had received from Mr. B. S. Williams some valuable books as a donation to the library.

— IMPORTANT TO NURSERYMEN.—The following report has been sent to us for publication:—An action was heard at the Westminster County Court on the 12th inst., which was brought by M. August Van Geert of Ghent against Messrs. James Carter & Co. of High Holborn to recover the price of some Camellias supplied in the autumn of last year, and which reached Messrs. Carter & Co. in an unsaleable condition, the leaves and buds having fallen from the plants; and as M. Van Geert would neither make any allowance nor replace the plants, Messrs. Carter & Co. were compelled on principle to defend the action. The defence involved the important question as to who was responsible for the damage, as the plants were sent to the agents of M. Van Geert in the city, and the defendants had no knowledge of the carriers or the route by which they were sent from Ghent, although they appear to have paid the freight to the carriers in a lump sum with the charge for bringing the plants from M. Van Geert's agent to Messrs. Carter's warehouse in High Holborn, and upon this fact coupled with the statement in a printed catalogue of M. Van Geert's that "all plants travel at expense and risk of purchasers," it was decided by His Honour Judge Bayley that the defendants were liable. In the case of another consignment which Messrs. Carter received from M. Van Houtte about the same time in a damaged condition it was unnecessary to bring the matter into a County Court, as M. Van. Houtte very promptly and liberally met Messrs. Carter in the matter by sending other plants to replace those which had been injured.

— HANGING BASKETS FOR GREENHOUSES.—In places where large and lofty structures are used for the flowering of greenhouse plants, the beauty of the display is greatly enhanced by baskets suspended from the roof. The baskets may be made either of wood or wire, the former, I think, from their more rustic appearance, looking better. They are usually made square. The pieces of wood which form them must be made equal length, and holes drilled through them about an inch from the ends. Four lengths of copper wire are required, one for each corner. The wire should be put through each piece of wood and brought up to form a handle for suspending from the roofing. A great many plants are well adapted to basket culture, and if the colours are tastefully

blended the effect is very pleasing. Tuberous Begonias, either single or double, are excellent for this work, a good plant being placed in the centre with an edging of any drooping plant, such as Musk, seedling *Lobelia* (white or blue), *Sibthorpia*, *Panicum*, &c. Small specimen *Fuchsias* do well with similar edging, while baskets of Ivy-leaved *Pelargoniums*, *Tradescantia*, *Fittonia*, or *Achimenes* are also very beautiful. Some of the greenhouse Ferns thrive well in baskets, particularly those with creeping rhizomes like the genus *Davallia*, which grow over and in time completely hide the basket if left undisturbed. If they are well attended to with water during the growing season it will be found that a great number of plants do as well in this position as in any other, and when any of the flowering plants fade they can easily be replaced with fresh ones. It would be well when hanging them to notice that the superfluous water will fall on the floor, and not on plants growing beneath, which might be injured in consequence.—O. C.

— POPULAR ROSES IN AMERICA.—At the February meeting of the Pennsylvania Horticultural Society, held in Philadelphia, an attempt was made to test the relative popularity of the Hybrid Perpetual Roses *Madame Gabriel Luizet* and *Mrs. John Laing*; the choice was made by ballot, and resulted in a majority of twenty-seven votes in favour of *Madame Gabriel Luizet* in a total vote of about ninety. A similar contest between *La France* and the *Duchess of Albany* resulted in a majority for the first-named. It would seem that these two varieties (*Madame Gabriel Luizet* and *La France*) are securely fixed in the affections of the Philadelphia horticulturists, and may not easily be displaced by the newer varieties, even though these are Roses of the very first rank.

— ORANGE CULTURE AT JAFFA, according to Consul Gilman, has become an industry of great value. Of the 9000 acres of cultivated land pertaining to the community, 3000 acres are covered by Orange groves and gardens; and these are all under irrigation. Among the other fruits produced are the Lemon, Lime, Citron, Date, Peach, Apricot, Grape, Fig, Pomegranate, Plum, and Melon, as well as the Olive. All the ordinary garden vegetables are also grown here of good quality and in abundance. Of late, the Vine especially is receiving increased attention and care; extensive vineyards are being planted; and as here the Vine is free from the diseases and insect pests of other countries, and the soil and climate are peculiarly adapted to it, this should be one of the most flourishing wine-producing countries in the world. The Olive does best in the hill country, and generously responds with abundant crops to the slightest care.—(*American Garden.*)

DESTROYING CATERPILLARS.

IN your issue of March 5th I find a report of a conference of fruit growers held at Evesham to consider the best means to destroy the green caterpillar on fruit bushes and trees. As they seem to be quite at a loss how to proceed to the destruction of them I beg to say that I have for several years made a mixture which entirely destroys them, and as a proof of it I enclose copies of two certificates which I received some years ago, and which I think will prove more than I can say about it. Further than that, it is non-poisonous, as any fruit may be taken from the tree and used at once. This was the only difficulty to contend with. The growth of the tree is much improved by the use of it, and being dissolved in water only requires the use of a syringe.

By inserting this in your next issue I shall feel obliged.—EDWD. CRUMMOCK.

[The testimonials received are satisfactory, and if the preparation is made for sale it should be kept before the public in the usual business way—advertising.]

CULTURE OF THE EGG PLANT.

ALTHOUGH the Egg Plant is not of such general use in English kitchens as it is in that of the southern countries, still it may interest some of your readers to know how we grow it under the climate of Paris. The Early Long Purple is almost the only sort which we can grow here. Most of the other varieties, being much later, are not suited for Paris or for England. The Early Dwarf Purple, which is a month earlier than the other kinds known in France, may be grown too, particularly in hothouses, on account of its compact habit, but the fruits are rather small and do not exceed the size of a medium Pear.

We sow the seed in March on a hotbed, prick out the seedlings into another hotbed, with a temperature of from 70° to 75° Fahr., and when the plants are strong enough towards May take them to their permanent quarters. We usually plant two rows of Egg Plants in a Melon frame measuring about 4 feet 4 inches each side, so that when the Melons are lifted the Egg Plants take their places, and stand about 18 inches apart in the rows, the latter being 24 inches apart; they thus have plenty of room and air, and yield fine fruits.

They can also be grown on a gentle hotbed under glass towards the

middle of May at a distance of about 20 inches, on substantial soil, the frame being in that case taken off in June. They may besides be grown on a warm house border, with bottom heat, but plenty of ventilation must be given. They may be also grown in a hothouse in pots which

quarters their full size, and according to the season fetch from 2d. to 4d. each in our market. During the setting of the fruits some care and attention should be given, and the extremities of the growth pinched. We use tobacco juice against insect pests.—E. SCHAEFFEL, *Paris*.



FIG. 32.—ARISÆMA SPECIOSUM.

are plunged on a warm bed covered with some earth, in order that the pots do not rest on the dung.

The plants require plentiful waterings during summer, and the more light, heat, and sun they have the better the fruit. We usually leave but three branches on each plant, which may yield from five to eight fruits. The latter, for culinary purposes, should be gathered when about three-

ARISÆMA SPECIOSUM.

AMONGST the Arisæmas we have some of the most ornamental Aroids if the brilliant Anthuriums and the invaluable Richardia be excepted. One of the most showy of these—*Arisæma speciosum*—was exhibited from the Royal Gardens, Kew, at the meeting of the Royal

Horticultural Society on March 11th last, and is depicted in the illustration (fig. 32). The leaves are trifoliate, rather graceful in appearance, but the spathe is boldly marked, being of a deep purplish maroon colour slightly tinged with brown, clearly and distinctly streaked from base to apex with white. The plant is a native of the Temperate Himalayas, and was introduced in 1872.

Most of the *Arisæmas* succeed in an intermediate temperature, but some require a stove, and others, again, will thrive in a greenhouse; all, however, need an open soil and abundance of water during growth, shallow pots or pans suiting them, as they do not seem to require much depth of soil.

ROYAL HORTICULTURAL SOCIETY.

MARCH 11TH.

SCIENTIFIC COMMITTEE.—Professor Church in the chair. Present:—Messrs. Blandford, Wilks, Morris, Drs. Hugo Müller, Frank Oliver, Scott, Masters, and Professor Marshall Ward.

Effects of London Fogs on Plants.—Mr. Morris read the terms of an application for a sum of money from the Government grant administered by the Royal Society, to be devoted to the partial payment of the expenses connected with the inquiry into the composition of London fog, with special reference to those of its constituents that are injurious to plants.

Fruit of Loranthus.—Mr. Morris stated, on the authority of Professor Oliver, that the fruit of the *Loranthus* attached to the panicle of the Sugar-cane, as exhibited at a previous meeting, was *L. americanus*.

Sugar-cane Borer.—Mr. Blandford reported that the moth mentioned at the last meeting as injuring Sugar-canes in St. Vincent was *Diatraea saccharalis*. The beetle alluded to on the same occasion is known as *Xylehorus perforans*, and was originally described by Wollaston in his "Catalogue of the Coleoptera of Madeira," page 96. It occasions great injury to the hungs of the wine casks in Madeira. Wollaston found it commonly feeding in the stems of *Jatropha curcas*.

Seedlings of Sugar-cane.—Mr. Morris, in continuation of information placed before the Committee on December 10th, exhibited specimens of mature seeds of the common Sugar-cane (*Saccharum officinarum*). There were also shown germinating seeds, some plants, drawings of the flower, and dissections of the fruit (caryopsis) in detail. Mr. Morris stated that there appeared to be no authentic record of any really wild station for the Sugar-cane; further, that the fruit of the Sugar-cane had not hitherto been figured or described. At Barbadoes several times during the last twenty years, and more recently by Professor Harrison and Mr. Bouch, self-sown seedlings of the Sugar-cane had been observed. The subject was taken up systematically in 1888, and about sixty of the seedlings had been raised to mature canes. Many of these exhibited well-marked characteristics, differing from the varieties growing near them. Careful inquiry had shown that canes known as the "Purple Transparent" and "White Transparent," and possibly also the "Bourbon" cane, produced seeds in very moderate quantities. Spikelets received at Kew had been examined and the seed found *in situ*. A description with figures had recently been laid before the Linnæan Society by Mr. Morris. It is anticipated that by cross-fertilisation and a careful selection of seedlings, it will now be possible to raise new and improved varieties of Sugar-cane, and renew the constitutional vigour of plants that have become deteriorated through continuous cultivation by cuttings or slips. Great importance is attached to the subject in sugar-producing countries, as it opens up an entirely new field of investigation in regard to Sugar-cane cultivation.

SPARMANNIA AFRICANA.

THIS fine Cape plant, which has been in our gardens now for something like a century, deserves more attention than is generally paid to it, which but too often consists in just keeping alive one or two old semi-nude plants in any convenient corner of the greenhouse or some other such structure.

In May and June the *Sparmannia* is usually crowned with its numerous umbels of snow white flowers, containing as they do a multitude of gaudy stamens—which reminds us forcibly of the popular *Hypericum* of our borders associated with a beautifully white corolla, instead of its familiar guardian in gold. It possesses, however, qualities of far more importance to the gardener than those we have just named. When a young stock is kept up—and it is easily propagated—it furnishes material for the cut flower basket through the greater portion of the year. Its double form, *S. africana* var. *flore pleno*, is the best for this purpose, which, though destitute of the beautiful stamens of the old favourite, amply compensates with an abundance of petals veined with deep rose. The flowers of the variety are slightly larger than those of the species, from which they vary in another respect—viz., their somewhat pendulous habit. I cannot conceive of a more profitable cool-house plant where cut flowers are in demand.

From what we gleaned in a recent visit to Messrs. B. S. Williams and Son's nurseries, Upper Holloway, it appears that gardeners are now becoming alive to this fact, the demand being on a steady increase. *Sparmannias* are easily struck where young shoots are to be obtained, giving no more trouble than the ordinary tenants of the propagating house. Our own practice is to place one or two old

plants, well spurred hack, into an early vinery, where, by the middle of April, they produce plenty of young growth suitable for cuttings, which we insert rather thickly, to economise space, in 48-sized pots, and plunge in the bed of the propagating house. Bottom heat is not absolutely necessary for them, but they root all the quicker for it. When rooted, they are potted singly in 60's in a compost of loam and leaf mould, with a dash of coarse silver sand to keep the whole porous. They are again shifted when necessary into various sizes as required, using the same compost.

The *Sparmannia* is by no means a gross feeder, all it requires being plenty of light and well drained, wholesome soil. Old plants should in every instance be well shaken out of the old compost before being placed in new quarters, which should be as confined as possible, shifting into large sizes as required, rather than overpotting in the first instance. Plants thus treated will retain their foliage better than when treated in a careless manner.—W. R. W.

A NOTED BOTANIST.

DR. C. C. PARRY died at his home in Davenport, Iowa, on the 20th of last month, from pneumonia, which followed an attack of influenza, contracted in the east. He paid a long visit to botanical friends in the autumn and early winter, and while here was busy investigating various matters connected with the California flora. He was then in perfect health apparently, active and alert in mind and body, and full of plans for new work. He was enthusiastic in discussing new expeditions in the far west, and full of reminiscences of travel and adventure. Though sixty-six years of age, we little thought then that our friend's wanderings were so near an end.

Charles C. Parry was born in Admington, England, on August 28th, 1823. His family emigrated to America nine years later, and settled on a farm in Washington County, New York. Dr. Parry was educated at Union College, and then studied medicine. He was interested, however, in botany even at this period of his life, and although he practised his profession for a short time in Davenport, where his family removed in 1846, he soon abandoned it for the more congenial pursuit of natural history. He had devoted much attention to collecting the plants of New York before he moved to Iowa, and these studies secured for him the acquaintance of Dr. John Torrey and Dr. Asa Gray. Their acquaintance confirmed his taste for botanical exploration, and exerted a powerful influence upon the remainder of his life.

Dr. Parry's real work as an explorer began in 1849, when he was attached to David Dale Owen's survey of Wisconsin, and made a collection of plants in the valleys of the St. Croix and St. Peter Rivers. The next year he joined the botanical staff of the Mexican Boundary Survey, and crossed the California desert from San Diego to the mouth of the Gila River. This journey and the subsequent ones which he made as a member of the survey, and which extended through two or three years, and carried him overland from the Pacific Ocean to the Gulf of Mexico, were rich in botanical discoveries of the most interesting character. These are found recorded in the "Report of the Mexican Boundary Survey," published in 1852. Persons who cross these deserts now in Pullman palace cars can form a very slight idea of the sufferings and hardships of these early explorers, who passed months in travelling distances now covered in as many days.

Dr. Parry's next conspicuous service to American botany was performed in 1861, when he began his examination of the flora of the central Rocky Mountains. This work, undertaken mainly at his own expense, occupied him several years. The Colorado Mountains were at that time a fresh field practically, their flora being known only by the scant material brought back many years before by the naturalist of Major Long's expedition, and Dr. Parry was able to reap a rich harvest from the plants which extend to the summits of the alpine peaks, which he was the first botanist to reach. He made, too, at this time valuable meteorological and topographical observations, afterward elaborated by Dr. Engelmann. Dr. Parry was appointed in 1869 as botanist of the Agricultural Department at Washington, and occupied this position for two years. He was, however, an explorer by temperament and by habit, and he had little liking for the restraints of an office position. This taste for travel he was able to gratify for the last twenty years, during which he was more or less continuously in the field, either in Nevada and Utah, where he made many discoveries, or in Mexico and California, where much of the last part of his life was passed. He always kept his home, however, at Davenport, in whose Academy of Natural Sciences he was deeply interested. This he made several years ago the depository of his herbarium, which was of course exceedingly rich in western plants, and which, besides his own collections, contained those of many correspondents.

Dr. Parry discovered hundreds of new plants afterwards described by Dr. Gray and by Dr. Engelmann, and his name is so firmly fixed in this way in the history of American botany that, although he published very little, it will be remembered as long as the plants of western America continue to interest the students of botany. Horticulturists will not forget that it was Dr. Parry who discovered *Picea pungens*, the beautiful Blue Spruce of our gardens; *Pinus Engelmanni*, *P. Torreyana*, *P. Parryana*, and *P. aristata*; nor that it was through his zeal and enterprise that many plants now familiar to us were first cultivated. With Dr. Parry there passes away the last, with a single exception, of the remarkable group of men who became prominent as botanical explorers soon after the great addition to the territory of the United

States which followed the close of the Mexican war, and who, fired by the enthusiasm of Asa Gray, opened to the world under his guidance the botanical treasures of the western and south-western parts of this country.—(*American Garden and Forest*, March 5th.)



MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY (Continued from page 225.)

A SLIGHT accident in the type in making up the article last week necessitates the reproduction of a few lines to render the references to Gloire de Dijon intelligible.

Gloire de Dijon.—A Rose of such notoriety, which forms seed vessels freely, has naturally been a prolific parent of Roses of similar manners and customs, forming a race to themselves. Perhaps the best of these are Bouquet d'Or (Ducher, 1872)—which, strange to say, is classed among the Noisettes in all the catalogues which I have seen except those of the National Rose Society and of Mr. G. Paul—Belle Lyonnaise (Levet, 1869), which is sometimes considered good enough to show, and Madame Berard (Levet, 1870), a better shaped Rose, but quite a shy bloomer with me. There are many others, and the cry is still they come. A large variety in colour has been obtained, but all seem to be much inferior to the original in its strongest point—constant freedom of bloom.

Homer (Robert, 1859).—Of very strong growth with fair foliage, but more suited for a pillar than a wall, and best as a big bush. I have never heard any doubts about this being a pure Tea, but it is of unique habit and manners, being, as far as I have seen, perfectly hardy and of strong constitution, and I wonder we have had no seedlings from it. It is not liable to mildew and but little injured by rain, does well as a dwarf, is a free bloomer and fair autumnal, pretty in colour, but small in size. It is hard to prove a negative, and I will not say that Homer never comes perfectly shaped, because I have heard of one, though I did not see it. Its bad manners in this respect are more aggravating because each imperfect bloom has the promise of a beautiful shape, but marred by a malformation. As often happens, the strongest blooms are the most imperfect, and the buds should be cut small, as buds, before their promise is spoiled. The exhibitor will have none of it, but for buttonholes and bouquets he cannot deny the buds the despised epithet of "pretty." Nay, I saw lately in the inquiry column of a horticultural paper a note from a correspondent asking for names of "three of the most sure, certain, and useful blooming Roses," and he was referred by the Editor to *Gloire de Dijon*, *Souvenir de la Malmaison*, and *Homer*! Well, well! tastes vary, and no doubt it is right they should, else all the young men in the world would be in love with the same young lady, and (which is more to our present purpose, though perhaps less disastrous) there would be an end to all those pleasing varieties of opinion as to which are the best Roses (and even as to which are Tea Roses) which have made the statistical returns of the Rose Conference so interesting to Rose lovers.

Hon. Edith Gifford (Guillot, 1882).—Of small growth and foliage, rather liable to mildew, but much injured by rain. A very good Tea Rose indeed, the blooms of which come very well, of fine shape, petal, centre, and size. It is thoroughly reliable, an excellent show Rose, early, free blooming, a good autumnal, and does well as a dwarf. A good Rose and a good "doer," a great acquisition, and a large improvement upon *Devoniensis*. I see that one catalogue at least has managed to describe its colour at some length without using the objectionable (?) word "white," and I am sure all who know the Rose will appreciate the feat.

Innocente Pirola (Ducher, 1878).—Of only fair growth and foliage; requires rich soil, and does not do so well as a dwarf; not much liable to mildew nor absolutely spoiled by a little rain. The blooms come well, and the shape is one of the most perfect we have, like the whorl of a shell. It is fairly free in bloom and lasting, but not one of the best autumnals, and not often very large till overblown. Most pure in colour, but, dear me! three of the leading catalogues describe its colour without mentioning the word "white!" I can only suppose there is some mysterious point of honour about it. Fine in petal and centre. This Rose should be a great favourite with those purists (with whom I have much sympathy), who insist upon regularity and perfection of shape as being the one thing desirable above all others.

Jean Ducher (Ducher, 1874).—Of strong, stout, stiff growth, with good foliage; does well as a dwarf, and is not very liable to mildew, but perhaps more sensitive than any Tea Rose to wet or rain. It must have dry weather, even when yet a hard bud, as soon as ever it shows colour, or it will not come to any real good. The very strongest buds are apt to come rough or divided, but as a rule they come pretty well if the weather continues dry, and when a fine bloom does come at last it is grand in shape, petal, centre, size, colour, and lasting qualities. It is a thoroughly free bloomer, good in a dry autumn, and fairly hardy for a Tea Rose. The colour is variable; sometimes there is a good deal of salmon pink about it, especially on the outside; rarely it is quite yellow,

and then very fine; when overblown the blooms have a good deal of red in them, and are very decorative at a little distance.

Jules Finger (Ducher, 1879).—Of good growth, with fair foliage; does well as a dwarf, is not much liable to mildew, and can stand a shower. The blooms generally come well, but the shape is not a refined one, the centre petals being incurved, whereas we expect the more elegant pointed form in a Tea Rose. Pretty good as a free bloomer and autumnal, not very large, and aggravating in colour. This is fairly good and pure when the flower first opens, but it will not hold it when cut, and if kept too long (for it has a lasting shape) it turns to a livid hue, which almost tempts one to use the word "ugly." Note that there is a *Julius Finger* among the H.P.'s, a light coloured flower of little merit.

La Boule d'Or (Margottin, 1860).—Of fair, stiff, but rather dwarf growth, with good foliage; very little liable to mildew, but being extra full it is a slow opener, and will not stand any wet. It does well as a dwarf, and the blooms come fairly well, though occasionally divided. This is a Rose of very large fine petals, which give it great value for show purposes, but it has rather a bad name as one that will not open. I have even heard it recommended that the roots should be cut in summer when the buds are formed to starve it into opening; but I cannot advise root-pruning for any Rose, except perhaps *Climbing Devoniensis*. It is a grand flower under glass, and well worthy of some artificial protection from rain when grown out of doors for exhibition; but this is not an easy business to manage satisfactorily. I have experimented with several sorts of caps, shades, and cones, but hope there is something better, firmer, cheaper, and more easily shifted yet to be found. Whatever be used let no one make the mistake of replacing the cover when the ground is wet, or the radiating moisture will settle on and rot the petals. It is seldom of any use as an autumnal, but is free blooming, capable of reaching a large size, and of extraordinary lasting qualities. I have seen a strong bloom on a south wall, exposed to a cloudless July sun, take nearly a week to open fully. The typical shape, as the name implies, has a round ball in the centre, but it often comes with a fine point, and is then much better, the great petals standing out like wings. "Bright golden yellow" is the general description of the colour, but this shade is unattainable out of doors, as it will not open without sun, which makes the colour much paler. After cold wet weather the buds (if any survive) will open much more quickly should a sunny time follow.

Madame Angèle Jacquier (Guillot, 1879).—Of pretty good growth and foliage, not much liable to mildew, but injured by rain. It will do well as a dwarf, but wants rich soil and high culture to be worth anything. The blooms come generally pretty well, and a good show flower may often be obtained, of fine petals, nice pointed shape, and full size. The colour is not striking, and, however described, it will be found more white than any other colour when grown out of doors. This is a Rose which seems to have improved or grown in favour during the last two or three years, but it is not specially noticeable as a free bloomer or autumnal.

Madame Berard (Levet, 1870).—See *Gloire de Dijon*.

Madame Bravy (Guillot, 1848).—Synonyms: *Alba Rosea*, *Josephine Malton*, and *Madame de Sertot*. Of good growth and fair foliage, not liable to mildew, but impatient of rain, and rarely producing show blooms when grown as a dwarf. The blooms come generally well, but the shape is very globular, almost like an incurved *Chrysanthemum*, and such a form requires the utmost regularity, and shows at a glance the slightest imperfection. The wood is pliable, and the blooms are therefore pendant, and can only be seen in perfection when artificially supported in a vase or Rose stand. A very free bloomer and fairly hardy, but the autumnal buds rarely expand fully. It is of fair size, but owing to the globular shape loses in this respect when compared with other Roses whose outer petals are long and stand well away, and is seldom large enough to be shown among H.P.'s. I do not know whether this Rose has deteriorated of late, but one does not, I fancy, see it shown so often as formerly. The objection of some Tea Roses to be grown as dwarfs, a mode of culture which affords the greatest facilities for protection from frost, seems likely to cause such dainty varieties to lose in popularity.

Madame Cusin (Guillot, 1881).—Of poor growth, with characteristic wood and very small foliage; not much injured by rain, but liable to mildew, and I cannot get it to do any good as a dwarf—indeed, few seem to be able to grow this Rose strongly, and it is not often seen well shown. The blooms almost always come well, and the shape is unique, with a fine point in the centre, and the petals all well separated and standing apart from one another. No dressing is required for this Rose, as the spreading out of the petals is one of the chief objects of this practice. Not large, but very free flowering; the buds must be rigorously thinned and the plant treated most generously if anything much above buttonhole size be aimed at. A fine colour sometimes, but this, as is often the case, is fleeting, and the general hue soon becomes dull.

Madame de Watterville (Guillot, 1883).—This Rose, which formed a new and notable departure in Tea Roses, seems to me slightly similar in strain to the last-named. The growth is never more than moderate with me; the foliage is small, and I cannot make it do well as a dwarf. For the first two or three years of its existence it was, I think, only shown in its full beauty by one rosarian, but all the leading exhibitors are able to grow wonderful blooms of it now. I suppose it is done from standards. The blooms come well, even though the buds be crinkled and apparently badly shaped, and the appearance of the flower is

unique and charming, with great wing-like petals, which give it a most effective appearance. It is sometimes "altered in character," I should say, by dressing, but it would be difficult to make it look anything but lovely. Liable to mildew, but not absolutely intolerant of rain; a very free bloomer of most charming buds, but these must be unsparingly thinned to see the Rose in perfection. It is of large size if grown as it should be, able to hold its own with any H.P.'s, and excellent in every good quality. I do not find it to be of good constitution or long-lived as a plant, and should not call it a good autumnal.—W. R. RAILLEM.

(To be continued.)

MARÉCHAL NIEL ROSE.

THE following may perhaps interest some of your readers. Last April I moved two plants of this Rose out of 6-inch into 12-inch pots, using rather heavy fibrous loam only. They were placed in a late Peach house and trained to the roof, fully exposed to the sun. They grew rapidly, and at the end of the season one plant, confined to one shoot, measured 21 feet of young growth. The other plant had three growths, which measured collectively 23 feet. They were turned outside at the end of September to ripen their wood. The plant with the single shoot has forty flower buds on it now, the other plant thirty. The former is coiled round four stakes placed in the pot. I may mention that the plants had an occasional surface sprinkling of Beeson's manure during their growing season. They are on their own roots, having been struck in the summer of 1888.—C. RUSSELL.

MIGNONETTE IN WINTER AND SPRING.

I NOTICED recently some fine specimen plants of Mignonette in the gardens of E. R. Trotman, Esq., The Elms, Frome. The seeds, I am told, were sown several in a 48-sized pot, and the seedlings were reduced to four in each pot when sufficiently advanced in growth. From these pots they were removed into others 10 inches in diameter, which seems rather a large shift, but their present condition speaks volumes in favour of the liberal treatment. They are 2 feet high and proportionately bushy and crowned with vigorous flower spikes in goodly numbers. The soil used consisted of loam three parts to one each of spent Mushroom bed, leaf mould and sand. In potting the soil was pressed down firmly, which induced a sturdy growth, and until recently no stimulant was applied of any kind. They occupied a position in the front of a large and lofty vinery having deep front lights, and only a frost-proof temperature was maintained.

BEGONIAS.

On entering a small stove in the same garden I was much struck with the beauty of some Begonias of the variety Gloire de Sceaux, having bold spikes of large and beautiful pink-coloured flowers. The latter is well displayed from their upright character of growth, and is well relieved by its dark bronzy foliage. It is a continuous flowering plant of the evergreen fibrous-rooted section, and makes in a small state remarkably effective table plants for the house. It requires intermediate or stove temperature in winter, but, like *B. nitida*, may be used for conservatory decoration in summer. It is a plant of somewhat recent introduction, sent out, I believe, by Mr. William Bull of Chelsea, and those unpossessed of, or having a liking for these plants, should certainly not be without this, one of the most beautiful of the Begonia family. It merits a place in every collection, even for the beauty of the foliage alone, which is of very fine lustre when grown in a light position.—W. S., Frome.

CANNAS.

STATELY in growth, with highly ornamental leaves and attractive flowers, Cannas are altogether noble and effective for decorative purposes, the chief purpose to which they are applied being sub-tropical or summer gardening. They are also extremely useful for decoration in the conservatory and house. No plants are more easily grown. They are also readily increased by seed.

The seeds should be sown in heat in March. I usually sow them in a Cucumber pit. They may be soaked for twenty-four hours in tepid water, which will materially stimulate germination, the seeds being very hard. Old seeds are long in germinating and uncertain. They may be sown thinly in pans, the seeds being placed about an inch apart in a compost of equal parts of light fibrous loam, leaf soil, and sand, covered to the depth of about an inch. Care is taken to keep the soil uniformly moist. When the plants appear they are well exposed to light, and a sharp look out is kept for slugs and even crickets, which are fond of the young growths. Searching with a lantern is best for the former, and phosphor paste (an old remedy) makes quick work of the crickets, also of *Blækhectics* or cockroaches. These are creatures that often clear off a pan of seedlings as they appear, and the seedsman is blamed. When the seedlings have formed two leaves I lift them carefully with the end of a label, and pot them singly in 3-inch pots. The soil used is equal parts loam, manure, sand, and a dash of Thomson's manure, a little peat being a beneficial addition. The soil can hardly be too rich and porous. As the seedlings become large enough they are transferred to pots. Keep the plants growing in a temperature of 60° to 65°, with an advance of 10° to 15° or more by day, and instead of allowing them to become stunted in the small pots they may be given a size larger, or 5 to 6-inch pots when they have filled

the first, or 3-inch pots, with roots. Towards the close of May they should be hardened in a greenhouse or in any structure where they can be kept rather close for a few days, and then prepared for planting out early in June.

Propagation is also effected very readily by means of division. The Cannas form rootstocks, not unlike a German Iris, and these may be broken or cut up in spring, being careful to retain a bud and portion of roots to each division. Place them singly in 4-inch pots, or such a size as will hold the root divisions with an addition of soil all around. Placed in a house with a temperature of 60° to 65° they will start freely, but are the better for a bottom heat of 75°, in which they quickly root and grow freely. They do very well in a vinery or other forcing house, but they always do best when grown on in plenty of light and in a position well up to the glass. They should be transferred to larger pots as they require it, and they will be useful by the early part of June for planting out, care being taken to harden them previously.

In some instances the pot system is dispensed with. If stored in boxes or in any safe place for the winter in sand the rootstocks are divided and placed in boxes in spring, and are given such positions in houses at command as will insure their gentle advance until the time arrives for planting out, the plants being transferred from the boxes or even beds under glass to their summer quarters, and they will do very well.

Cannas outdoors require sheltered situations. In exposed places their noble leaves are much injured by winds. They also do not like dry and shaded sites. What they want is an open or sunny position, but sheltered from winds. The soil should be deeply stirred and well enriched, plenty of moisture also being an essential of Canna culture. In planting the rootstocks should be kept down at least 3 or 4 inches and duly watered, but avoid saturating the soil until they become well established. A sprinkling over the foliage in the evening is highly beneficial, and equally so is a mulch of well decayed manure, or preferably of cocoanut refuse. When they begin to grow freely they can hardly have too much water, especially when the weather is droughty, and liquid manure applied once or twice a week will materially help them in making foliage, and by August the Canna beds will be gay. I consider that no beds of foliage plants can equal well filled ones of Cannas. Their noble foliage and flowers render them singularly pleasing during the late summer and autumn months.

After the first frost, which usually leaves its mark on the foliage, the plants may be lifted, and either potted or stored away in boxes packed with light soil and placed in dry, frost-proof places or cellars or sheds, or under greenhouse stages during winter, but having tried most plans I find nothing equal to potting the roots before the foliage is damaged by frost, and placing them in a house where they can be kept rather close and moist until the potting is recovered from, duly supplying with water. This insures the completion and ripening of the growth, and they form much finer rootstocks, which divide and start into growth much better than those that have the growth destroyed by frost, and are lifted and stored in places which are so dry that most of the life is withered out of the rootstocks during the winter. This drying and withering process is not of any use to anything, particularly Cannas. When the stems die the roots do not, of course, require to be kept wet; yet there is a difference between having moisture enough to keep the rootstocks plump and keeping "dry as dust," so as to impair their vitality if not jeopardise their existence.

In warm sheltered situations and well drained soil Cannas are said to winter safely in the open, the bed being covered with a good thickness of cocoa refuse and some litter or fern to keep out frost, about a foot thickness altogether being necessary. I have not, however, tried this plan, nor have I known any cultivator who from experience could vouch for the success of the system. These poor soils are not good for Cannas unless they are specially prepared. Where the soil is wet and cold it is much the safest plan to lift the rootstocks and store them.

Cannas are useful and effective for greenhouse, conservatory, and house decoration. For these purposes select the best plants after they have been started into growth in spring or the most sturdy and promising of the seedlings. These may be grown in 9-inch, 10-inch, 11-inch, or 12-inch pots, using a compost of turfy loam, well decayed manure, and peat in equal parts, with a free admixture of sand. I find it best, however, not to divide the rootstock so much for this purpose as for those that are intended to be planted out; therefore those grown for the purposes indicated are kept in pots constantly, and are grown as greenhouse plants, being duly supplied with water until a much later period than those that are lifted and dried, and they may be said to never be rested so far as the drying process is concerned, though they are kept somewhat dry during the winter, or from midwinter to March. When they begin to push fresh growths in spring the plants are turned out of the pots, they are given fresh and clean pots, and the roots are reduced, repotting in fresh material. Larger pots are given if deemed expedient, or they are divided if increase is needed or the rootstock is considered too large for the pots they are to occupy. A little of some approved fertiliser is mixed with the compost in potting, which gives them a start, care being taken not to overwater or make the soil sodden until the plants push fresh growths and are making roots freely, when they require copious supplies of water, and of liquid manure when the roots are fully possessed of the compost. With this and full exposure to light they will make sturdy, thoroughly ripened growth, a genial condition of the atmosphere being secured by keeping the stages well damped with an occasional sprinkling over the foliage, but not having it wet when the sun falls powerfully upon it. The only other attention requi-

site is to cut away old growths that detract from the appearance, and not to water so as to render the soil sodden, for such as Cannas like moisture, they soon become rueful objects when saturated. Give a full supply of water when it is wanted before the foliage flags, and wait until the soil or the ring of the pot indicates the necessity of its repetition. Plants grown in this way are in season from June onwards. If earlier plants are wanted they must be forwarded in a stove or warm house, but they are not half as good for decorative purposes as those grown in a greenhouse or conservatory.

SELECT VARIETIES.

For Growing in pots for Decorative Purposes.—*C. iridiflora*, broadly acuminate leaves, the whole plant attaining to a height of 6 feet or more. Its flowers are Iris-like, large, rose coloured with a yellow spot on the lip; the spikes droop gracefully, several emanating from the same spathe. *C. iridiflora hybrida* has large blood red flowers, very effective, the foliage green and bold. It also attains to a height of 6 feet or more. *C. iridiflora Ehemanni*, immense foliage of an attractive reddish hue, flowers bright crimson, perhaps the noblest of all Cannas. *C. Bihorelli*, leaves red in a young state, changing to deep bronze with age, flowers deep crimson, very freely produced, height 5 to 6 feet. *C. gigantea major*, leaves green, petioles having a velvety down covering, flowers large, orange red or scarlet, very ornamental, height 6 feet. *C. nigricans*, dark bronze stems and foliage, red flowers, one of the finest, height 4 to 6 feet. *C. Annæi*, green glaucous foliage, flowers salmon. This is perhaps the most glaucous of all the kinds. Height 6 feet. *C. Prémices de Nice*, an exact counterpart in foliage of *C. Annæi*, of which it may be a variety, flower large, bright yellow, height 6 feet. *C. zebrina*, fine deep green foliage, passing into dark red rayed with purple, stems dark violet red, in foliage very effective, flowers small, orange, height 6 feet. *C. musæfolia maxima*, fine large green Musa-like foliage with dark petioles, stately in contour, flowers orange red, height 4 feet. *C. grandiflora floribunda*, foliage dark, flowers large, red, freely produced, height 3 to 4 feet. *C. Van Houttei*, foliage green, rayed and margined purplish red, flowers large, scarlet, and very freely produced, height 3 to 4 feet. *C. Chatei sanguinea*, leaves ovate elliptic, deeply tinged purple, red flowers, height 3 to 4 feet. *C. nobilis*, leaves rayed and margined red, flowers red, height 3 to 4 feet. The two last are undoubtedly varieties of *C. Warszewiczii*, dark foliage, blood red flowers, height 3 feet. There are many other fine species and varieties, but commencing with *C. iridiflora Ehemanni*, I do not think thirteen choicer varieties exist for decorative purposes outdoors, being in respect of foliage and flowers highly effective. Cannas, however, need improvement in the direction of the flower in form, substance and size; indeed there is no reason why they should not be as remarkable for the beauty of their flowers as they are now for their unique grandeur of foliage and habit.—G. A.

RICHMOND HORTICULTURAL SOCIETY.

MARCH 18TH AND 19TH.

THE second spring Show of the above Society was opened on Tuesday last by the Duchess of Teck, and proved very satisfactory in all respects, being favoured with extremely fine weather. The Show was held at the New Castle Assembly Rooms, but the apartment devoted to it was scarcely large enough, consequently some of the exhibits were rather crowded, and a portion of the adjoining corridors was occupied. Hyacinths, Tulips, Deutzias, Azaleas, Orchids, groups of plants, and floral decorations contributed to the bright, varied, and pleasing effect produced. The Hon. Secretary, Mr. J. H. Ford, has worked hard to develop this Show and increase the local interest in horticulture, and he deserves every credit for the success achieved. Messrs. Bates, Lindsay, Brown, and other members of the Committee have also contributed materially to the prosperity of the Society by their well-directed efforts.

A prominent position was accorded to the tastefully arranged group from H. Little, Esq., Baronshalt, Twickenham, which gained him the premier prize in the class, Orchids, Clivias, Cyclamens, Deutzias, and bulbs being employed with Ferns and foliage plants. Mr. H. Williams, Finchley, was second with Azaleas, Deutzias, and bulbs; and Mr. Fordham of Twickenham was third with a bright group, but rather formal. Mr. H. Little also had the best six Orchids, comprising well-flowered plants of *Cymbidium Lowianum*, *Vanda suavis*, *Phalaenopsis Schilleriana*, *Cattleya Trianae*, and *Cypripedium villosum* and *Boxalli*.

With eighteen Hyacinths Mr. H. Williams secured first honours for even plants, having grand spikes, and Mr. J. Lonsdale, Shepperton, was second. Mr. Williams was also first for six single Tulips, again followed by Mr. Lonsdale, while Mr. Williams had the first prize for six pots of Narcissi. Mr. W. Brown, St. Mary's Grove Nursery, Richmond, secured premier honours with six plants of *Dielytra spectabilis* well flowered. W. Clay, Esq., Elm Villa, Kingston, had a collection of Primulas, and secured first prize for well flowered plants. In the amateurs' classes for six Hyacinths Messrs. D. White, J. Lonsdale, and F. Lonsdale were the prizetakers.

There were four entries of twelve Cyclamens, and the competition was rather keen in regard to the two first prizes. Mr. D. White, gardener to Mrs. Farnell Watson was placed first with compact even plants, including several bright colours, and H. Little, Esq., was second with stronger plants bearing a number of large, well-formed flowers. Messrs. Williams of Finchley, and Bray of Richmond, were exhibitors of Lilies of

the Valley; Cinerarias came from Mr. D. White and Mr. Baynes, gardener to Sir J. Brunlees, Argyle Lodge, Wimbledon Park; double Primulas from Mr. Brown; Deutzias from Messrs. Little, White, and Brown also added materially to the Show. Mr. W. Brown had a capital collection of *Azalea mollis* varieties; Spiræas were shown by Messrs. Williams, Brown, and Bray, who gained the prizes in the order named. Mr. W. Clay of Kingston had a large collection of Cyclamens. Three good collections of six table plants were shown. Mr. Sullivan, gardener to D. B. Chapman, Esq., Downshire House, Roehampton was first for neat and graceful plants, and Mr. Bates was a good second.

With bouquets Mr. G. Newman, 1, Broadway, Bromley, Kent, was first, having a handsome combination of Roses, Cattleyas, Lilies of the Valley, Spiræas, and Angraecums. Miss E. L. Clarke, Whitton, Hounslow, was second with a loose arrangement of Chionodoxas, White Tulips, Lilies of the Valley, and Cyclamens. Mr. J. R. Chard, Brunswick Nursery, Stoke Newington, following with a bouquet of Roses and Mahonia leaves. Stands of plants were shown by Mr. F. T. Wadhouse and Miss E. L. Clarke, who were first and second, Freesias predominating in the former, and Daffodils in the latter. With buttonholes and sprays Mr. Newman, Mr. Chard, and Mr. Bray were the prizetakers in the order named, all showing very tasteful productions. Messrs. Lonsdale and Bray had collections of Daffodils.

Mr. Wm. Bates was first with four dishes of excellent Apples, fine specimens of Dumelow's Seedling, Bienenheim Pippin, Lord Burghley, and Cornish Aromatic. Mr. Wadhouse was second with Gloria Mundi, Beauty of Kent, and King of the Pippins, all well kept.



FRUIT FORCING.

PINES.—*Suckers.*—The rooting of those recently potted will be indicated by the growth of the foliage, but it is well to turn the plants out of the pots, or at least a portion of them, to ascertain the condition of the roots and the soil. The young roots which issue from suckers, or plants subjected to similar treatment, are tender and susceptible of injury from the effects of too much bottom heat, hence when the roots reach the sides of the pots 85° is ample, above which there is danger. When the bottom heat is excessive the pots may be raised, placing some loose tan under and around them, so as to allow the superabundant heat to pass away without injuring the roots. The plants must be carefully supplied with water.

Established plants now root rapidly, and soil should be prepared for transferring them to their largest pots, as it is important they be grown without check by being either dry or root-bound. Sound fibrous loam in good sized lumps is the best material for potting, pressing it firmly down and round the balls of the plants, watering the plants with tepid water, and plunging them in a bottom heat of 90° to 95° until the roots have possession of the fresh soil, when 85° is more suitable.

Fruiting plants, and those that are at or near the flowering stage should have a night temperature of 65° to 70°, and 75° by day, with 80° to 90° from sun heat, closing at 85°, well damping the house at that time. Afford succession plants a bottom heat of about 85°, ventilating at 80°, and closing at 85°, lightly sprinkling the plants occasionally.

PEACHES AND NECTARINES.—*Earliest Forced Trees.*—When the fruit are stoning too high a temperature at night is not favourable, and cold draughts in the daytime are even more injurious, therefore maintain as agreeable a temperature as practicable. Continue it at 60° to 65° at night, and 70° to 75° during the day. Thinning the fruit must be attended to betimes, it not being advisable to leave during the stoning period more than twice the number of fruits that are to be left for a crop. One fruit to a square foot of trellis covered with foliage is ample. Nectarines are often left much closer, which proportionately lessens their size, whereas to secure fine fruits they require the same space as Peaches. See that all the shoots are tied to the wires as they progress, stopping any gross shoots at about 15 inches, or if very gross and likely to interfere with an equal distribution of the sap or induce gumming, remove them altogether. If the pinching results in laterals stop them at the first joint, and if extension is wanted the uppermost laterals may be trained in as a continuation. If the trees are in good order there will be little necessity for stopping the shoots, they being trained in their full length, allowing space for the development of the foliage in order to solidify the wood as made. Shoots retained to attract the sap to the fruit should be stopped to one leaf, they having previously had the growth stopped at the second or third leaf.

Second Early Forced Trees.—Disbudding must be attended to, a shoot being taken from the base of the present year's bearing wood, or last year's young wood, and one on a level with or beyond the fruit may be stopped at the second or third leaf. Upon extensions leave young shoots at 15 inches to 18 inches distance, the shoot from the extremity being trained as a continuation of the primary branch. The main shoots must be 12 inches apart. Commence tying early, as when the shoots are allowed to grow considerably they cannot be brought near to the

wood they proceed from without danger of breaking. Overcrowding must be carefully guarded against. It is fatal to fine, highly coloured fruits and the formation and perfection of the wood of future crops. Thin the fruits by degrees, leaving those well placed upon the upper side of the trellis in sufficient quantity for a crop, or a little more until the final thinning before stoning. In no case is it good practice to tax the trees with superfluous fruit after it is the size of marbles. Temperature 55° to 60° at night, 65° by day, increasing to 70° to 75°, ventilating freely between 70° to 85° if it rise to the latter, as it often does on bright mild days.

Houses Started at the Beginning of February.—The trees are in full flower or setting the fruits, and it is an anxious time. Continue to fertilise the blossoms on late trees when the pollen is ripe, as we have not found it satisfactory to trust to Nature in the case of trees under glass, which from unfavourableness of weather often have to be kept close, or with a crack of air only, for most of the flowering season. When the blossom is all set recourse must be had to syringing in the morning and afternoon, having the foliage and young fruit dry before nightfall. Disbudding may be done gradually, commencing with the strongest shoots, also thinning the fruit after it is seen which takes the lead in swelling, removing the smallest first, but avoid large reductions of shoots or fruit at one time. Temperature 55° at night, 5° less on cold mornings; 55° to 60° by day, advancing to 65° or 70° from sun.

Houses Started Early in March.—The flowers are expanding. Syringing must cease directly the anthers show clear of the corolla, but damping the floors and borders must be practised on fine days, admitting air freely in mild weather, fertilising the flowers on fine days. Maintain the night temperature at 45° to 50°, 55° by day artificially, and 65° from sun heat. Admit a little air constantly. Superfluous flowers on the under side or back of the shoots may be removed by drawing the hand down the growth.

Late House.—Lights removed in winter must be replaced at once, the buds being well advanced in swelling. Nothing assists to a good set so much as turning on the heat for a short time in the early part of the day to advance the temperature to 50°, and to permit ventilation after the flowers expand, as if there be a prevalence of dull cold weather at that time, closing the ventilators for safety produces an atmosphere that converts the pollen into paste. Houses that have fixed roof lights must have the borders rendered thoroughly moist. If there be any trace of aphides fumigate thoroughly before the flowers expand.

FIGS.—Early Forced Trees in Pots.—Those started early in December will be induced to swell their fruits by a top-dressing of rich material applied to the surface of the soil, and if a layer of turves has been placed around the rim of the pots as before advised, space is afforded for the top-dressings. Do not give heavy dressings of rich compost all at once, but apply it little and often; apply also liquid manure, 1 oz. of the soluble artificial manures to a gallon of water, but give it in such quantity as to pass through the pots. Dribbles do no good. Maintain a genial atmosphere by syringing twice a day when the weather is bright, but avoid keeping the foliage constantly wet, as would be the case by syringing vigorously in dull weather. Damp the paths, walls, and bed, keeping the evaporation troughs charged with liquid manure, and to check red spider paint the hot-water pipes with sulphur. Admit a little air at 70°, increasing it with sun heat up to 85°, which ought not to be exceeded, closing at 80°. The night temperature may still range from 60° to 65°, 55° in the morning in very severe weather is safer than the higher temperature, advancing 10° by artificial means in the day-time. Avoid crowding, stopping, or tying the shoots as growth advances, as the fruit to have flavour and colour must when ripening have full exposure to light, combined with a circulation of warm dry air.

CHERRY HOUSE.—When it is seen that the fertilising has been effectual by the swelling of the Cherries at the base of the decayed flowers syringing must be resumed once a day at present or in dull weather, and twice a day when the weather is clear and warm. Fire heat will only be necessary to prevent the temperature falling below 40° at night, and to maintain 50° by day as a maximum. Ventilate at 50°, closing at the same time, regulating the ventilation according to circumstances. If green aphides appear fumigate the house, having the foliage dry, and keep a strict look out for grubs. Stopping will soon require attention. Pinch out the points of the shoots when they have made 4 to 5 inches of growth, removing those shoots that are not required. Train extensions in their full length, also those for filling vacant space. Overcrowding must be carefully guarded against, it being prejudicial both to the present and to future crops.

THE FLOWER GARDEN.

Work in Shrubberies.—Shrubberies generally ought now to be put into good order for the season. In many instances the older ones will be much improved by having some of the ugliest overgrown Laurels sawn down to near the ground, others merely require to have some of the branches freely shortened back, while all pay for timely attention in the way of pegging down branches of Laurels, Rhododendrons, and Aucubas especially wherever the fronts are badly furnished. Where extra large Laurels are cut down it will in some cases be necessary to plant a few young bushes, and these will grow and fill the space in conjunction with the branches from old stumps much more regularly than before. Newly formed shrubberies are usually planted much more thickly than is ultimately good for the trees and bushes. Thinning out ought, therefore, to be freely resorted to, transplanting a portion of the

shrubs to where there are more needed being the wisest course to pursue. This work may be continued for another six weeks, always providing it is done well. Nor should pruning be neglected in the case of young shrubberies, as, with the aid of a knife used just now, many plants can be kept within bounds and of better form than if allowed to grow at will. All open shrubberies especially ought to be lightly forked or skimmed over with a spade, this burying much rubbish and presenting a far neater appearance.

Climbers.—The commoner and more vigorous kinds, notably Ivies and Japanese Honeysuckle, are apt to overgrow the rest, and both are objectionable when in a rough state. When either get too large or coarse it is a good plan to cut them hard back to the wall, or, better still, down to near the ground, the young growths that soon follow being far more ornamental in appearance. Ugly overgrown plants of *Crataegus pyracantha* might also be cut down with advantage, young spreading branches neatly laid in to a sunny wall invariably flowering and fruiting freely. Thickets of Clematises must always be prevented. Those that flower from young growths formed last summer should be only thinned out and lightly shortened back, but the late summer and autumn flowering species, including the well known *C. Jackmanni*, ought to be freely shortened, the aim being to secure as many strong back growths as possible. These will flower strongly. All lateral growths on Jasminums to be spurred back to the old wood, the common sweet-scented white kind flowering on the young shoots, while *J. nudiflorum* will form fresh wood for flowering next winter. *Chimonanthus fragrans*, *Pyrus japonica*, Pomegranate, Myrtles, and *Garrya elliptica* to have all straggling branches shortened back and leading growths laid in. *Euonymuses* to be similarly treated. Magnolias require no pruning, but must be firmly fastened to the walls. *Wistaria sinensis* to be treated similarly to Pears, the flowers being most freely produced by short spurs.

Pruning Roses.—Roses in the open were at one time more forward than those against walls, but cold winds and severe frost have effectually checked their progress. Pruning may now be safely done, both of those growing against sunny walls and in the open. The former are too often neglected, but they require to be pruned quite as much as those in the open. Unpruned they flower profusely the first season, but fail to form good growth for the following year. Therefore thin out spray, freely cut back all medium-sized shoots, and lay in and lightly shorten back the more vigorous yet well-ripened growths. Only the smaller wood will flower in the case of Banksians, and at the present time it is advisable to reserve this and remove some of the gross shoots. Quite the opposite treatment holds good in the case of *Maréchal Niel*, this flowering most freely on long well-matured growths. Standard Roses must be kept within bounds, as when once neglected it is almost impossible to get them into a presentable condition again. These ought to have the centres well thinned out, and all long shoots cut back to better placed inner growths. Next cut out all spray, as this is never of any good, then thin out the remaining shoots where these are at all thick, finally leaving about six of these, and which should be cut back, the strongest to about the ninth eye, and the moderately strong to third or fourth bud. Dwarf Roses should be either somewhat similarly treated, or the pegging down system must be adopted. In the latter case it is the long and strong young shoots that should be lightly shortened back and pegged down, the old flowering wood being cleanly cut out. The pegged-down growths will flower freely, pushing up extra fine blooms, while from the centre of each plant will spring vigorous shoots, these eventually taking the place of those pegged down this season.

Manuring Roses.—If starved at the roots, Roses need not be expected to grow strongly or produce good solid blooms. They are often located where mulchings of manure would prove unsightly, but even this difficulty can be overcome. The simplest and best plan in most cases would be to carefully remove the soil down to the roots of the plants, returning this after a liberal dressing of manure has been given. The manure being thus covered with soil, is well hid from view, that is if the birds can be kept off. It is within easy reach of the roots, and retains moisture much longer than it does when spread on the surface. Those Roses growing against sunny walls stand in especial need of a heavy mulching of manure, and may with advantage also frequently receive liberal supplies of water and liquid manure from the present time and onwards. The least that can be done for those in the open is to lightly work in a dressing of half-decayed manure, this being done directly after pruning is completed.



NOTES ON BEES.

On the 14th of March, after four days' stormy weather, mildness succeeded the low temperature up till the 9th, and in twenty-four hours the thermometer rose from 20° to 55° with a falling barometer, which clearly foretold the coming storm. With the thermometer at 32° some of the bees were getting restless. No doubt a paucity of pollen within their hives, through so early

excessive breeding, induced them to go outside in search of more. The same thing occurs if a dearth of honey is expected. Hives that are subjected to an empty larder in winter of either pollen or honey are sure to dwindle.

By the owners of several apiaries I was asked the cause of the bees of some of their hives being so restless. I advised feeding, and a subsequent examination proved that without feeding the restless ones would have been dead—simply another proof that it is better and safer to leave the bees with plenty stores in autumn, and if necessary to remove a comb or two in spring, than having to feed them.

CLOVER VERSUS HEATHER HONEY.

For some years past our district has been converted into a dairying one, consequently there is more pasture for bees than was the case a few years since. Clover honey is more plentiful when the end of June and beginning of July are favourable, but the demand is very limited, Heather honey being when fine more in request, and probably many others are in a like position. I shall not be ungrateful for an abundant supply of Clover honey, as I have various resources of outlet for a large quantity; but I shall work my stocks, at least a portion of them, to be right for the wild Thyme and Heather. The particular management I must reserve for a future occasion, as we cannot lay down an infallible rule but must adapt everything to circumstances. What I shall keep in view, although it has to be attained in different ways, is to have every hive provided with a young and fertile queen, and the combs well charged with brood at the end of July, and an adequate supply of meat, so that neither starvation nor drawing brood will take place however adverse the weather may be. In some seasons each stock may be left to itself, but sometimes it is not only advisable to unite two but is ruinous to avoid it. Then some seasons are favourable for having a large quantity of empty combs, while the others make it a disadvantage. It is not altogether what the bee-keeper would do, but is what the seasons demand to be done, and I hope to be able to show beginners how best to get along.

I prefer if the seasons would allow to have a limited supply of empty combs below, but only in rare cases above. Instead of preserving empty combs for supers I generally melt them down. The reason for this is that when bees are supplied with empty combs but a short time before the honey flow they darken them, and this puts an end to its being first class. First class comb is most frequently had from those hives crowded with brood and bees right beneath the supers, and when the honey flow commences so does comb building and comb filling with the purest of nectar. No intermediate storage is performed, nor is it necessary. When supers filled as above they bring higher prices than what are not inaptly termed artificial products produced by modern and in many cases artificial bee-keepers.

DIFFERENTLY SEALED CELLS.

Not long since when in conversation with a young lady she exclaimed "That she would like to be proficient in bee-keeping, but there was so much to be learned I would as soon go back to a boarding school as learn all about bees, especially when there are so many conflicting opinions." My rejoinder was, Not so very much after all; select the grain from the chaff and you will find two-thirds at least not worth retaining, and the science of bee-keeping will dwindle to very little.

The variety of bees and the manner of sealing the combs were also commented upon, but I could not advise which variety to keep that left a vacuum between the seal and the honey. I have frequently taken three, four, and even five large supers from hives at one time, and the appearance of every super differed in that respect from one another, exactly what some would tell us No. 1 was from a Carniolian, No. 2 from a Syrian, and No. 3 from the native black. That is one thing I have not learned yet—how to distinguish one variety of bees' honeycomb from

another, nor do I believe it can be done. One variety uses more propolis than another does, and different flowers produce a difference in appearance in the combs built and filled with honey than do others, but as regards one leaving an air space, and another sealing hard to the honey, or employing more wax than another variety does, is not believed in nor experienced by—A LANARKSHIRE BEE-KEEPER.

THE LANARKSHIRE HIVE.

It must be very gratifying to "A. L. B. K." to see so many inquiries in the Journal about the Lanarkshire hive. Bee-keepers are slowly coming to the conclusion that the standard frame hive is not so suitable for bees as it ought to be. I tried a Lanarkshire hive last season, and was highly pleased with it. I had more surplus honey from it than some of my neighbours had from two hives of the ordinary bar-frame kind. It is easily prepared for moving to the Heather, whereas the standard frame hive requires much fastening up before it can be moved with safety. The perforated zinc floor is a capital idea, saving the bees a lot of labour, as they have no refuse to carry out. This and the ventilator ought to be in every bar-frame hive. Any of your readers who are thinking of starting bee-keeping cannot do better than make themselves one of the above hives, which they can easily do if they are handy with joiners' tools; instructions have been given in the Journal many times of late.

BEE FEEDERS.

I have tried "the universal feeder" described by "A. L. B. K." in the Journal for January 23rd, page 77. I find it answers admirably. I have no doubt that when the bees are in a feeding state they will take the syrup very quickly. Of the two I prefer the bar-frame feeder, because it is so firm. The box feeder, however, has the advantage of being suitable for placing on the top of any kind of bar-frame hive. It is strange that this useful appliance is not oftener seen, as it is far ahead of the old tin feeder with float, which is the kind of feeder that is used chiefly in this district.—C. RUSSELL, *Ingmire Hall*.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

THE annual meeting of this Association was held in the Mayor's parlour at the old Town Hall recently under the presidency of Mr. L. Fosbrooke, Ravenstone Hall. About a dozen other members were present. The report of the Committee stated that in accordance with general anticipation the disastrous season of 1888 had been followed by one productive of more than an average crop of honey. The Committee congratulated the bee-keepers of Leicestershire on their good fortune. The annual Show was held in the show ground of the Leicestershire Agricultural Society at Melton Mowbray on July 31st and August 1st. Mr. J. M. Hooker, the Judge appointed by the British Bee-keepers' Association, writing on the Show, had said:—"The Leicestershire Association have reason to be proud of the grand display of honey this year; the great uniformity of appearance and flavour made it a difficult matter to select the best, where all were good, my only regret being that I had not double the number of prizes to award in the several classes. I never saw better honey staged. It shows that the teaching of the Association has not been in vain." Nearly a ton of honey was placed on the tables. There was also an excellent display of hives and bee appliances, thanks to Messrs. Meadows & Redshaw, who gratuitously exhibited their magnificent collections of apiculture apparatus. The silver medal was awarded to Mr. J. W. Bickley of Melton Mowbray; the bronze medal to Mrs. Copley, and the certificate to Mrs. Rippin of Waltham. The hive and bees were drawn for as usual, and fell to the lot of Mr. Beazley. A second Show was held on August 6th at Leicester in connection with the Abbey Park Flower Show. The Committee very much regretted to have to point out the very unsatisfactory state of the finances of the Association, and trusted that earnest endeavours will be made on all hands to increase the income either by subscriptions or donations. Special efforts were being made to reduce the debt, and donations for that purpose had already been received from Messrs. Whetstone, Mott, Finch, Meadows, and Perkins. All liabilities except prizes had been discharged, and it was intended to make the prize money a first charge on the current year's income. Members were requested to note the change of residence of Mr. George Munday, the expert; his new address being Cromwell Road, Wigston Road, Aylestone, Leicester. Circumstances over which he had no control had compelled the Secretary to resign. It will, therefore, be necessary to appoint someone else to the office."

The balance sheet showed receipts amounting to £36 ls. 10d., leaving a deficit of £9 12s. 6½d. A short discussion followed upon the report, during the course of which Mr. T. Carter said it must be evident to all that the funds of the Association were not sufficient to enable them to meet the expenses connected with their Shows. Then, again, the expert's expenses amounted to nearly one-third the income of the Society. That was an expense that had been deliberately adopted, and to some extent they were obliged, perhaps, to continue it, because one of the objects for which the Society was founded was to instruct members in the management of bees. If they did not keep that up they would be rather breaking faith with their members, but they could not continue to conduct the Society on the present system unless some vigorous means were adopted for increasing the funds or diminishing the ex-

penses. There was no doubt the Society had done good during the time it had been in existence, and he would be very sorry to know that it had to be dissolved, but that meeting must seriously consider what means, if any, could be adopted to put the Society in a better position. Mr. Ryley thought the Agricultural Society ought to undertake the Bee Show held in connection with their annual Exhibition. If the Show benefited anyone at all it was the Agricultural Society, and they ought, therefore, to pay all expenses. Mr. Meadows suggested that similar representations should be made to the Abbey Park Committee. Attention was called to the fact that the Association, being affiliated with the British Bee-keepers' Association, was entitled to the gratuitous services of a Judge, and it was resolved to communicate with the British Association on the subject. In the end the report was adopted, and the following Council was appointed for the ensuing year:—The Rev. M. A. Thompson (Thistleton), the Rev. A. M. Rendell (Leicester), Mr. L. Fosbrooke (Ravenstone Hall), Mr. T. Carter (Leicester), Mr. W. P. Meadows (Syston), Mr. J. Cooper (Belgrave), Mr. J. Atkins (Aylestone Park), Mr. T. J. Clarke (Aylestone), Mr. J. M. Marriott (Claybrook), Mr. J. H. Shenton (Market Bosworth), Mr. T. B. Widdowson (Leicester), and Mr. J. W. Bowles, C.C. (Leicester). On the proposition of Mr. Carter it was unanimously decided to appoint Mr. H. M. Ryley (Tower House) to the office of Secretary in the place of Mr. Edwin Ball (Waltham, Melton Mowbray), resigned. Mr. Ball was cordially thanked for his past services, and awarded an honorarium of £3 3s. The remaining business was merely formal.

TRADE CATALOGUES RECEIVED.

Charles Sharpe & Co., Sleaford, Lincolnshire.—*Catalogue of Farm Seeds and Seed Corn, 1890.*



*** All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Duration in Growth of Vegetables (Streatham).—Perhaps the article to which you refer was a portion of a lecture delivered by Mr. J. Wright at Nottingham, and if so you can have the whole of that lecture in pamphlet form free by post for 3½d. sent to the publisher. We think the stock of the Ham Green Favourite Tomato was obtained for distribution by Messrs. James Veitch & Sons, Chelsea.

Gardeners' Societies (W. H. B.).—We believe the subject of your letter is under consideration by persons who will be certain to "consider it from every point of view," whether it "comes to anything" or not. Many things are desirable that are not practicable, and this may or may not be one of them. We have not much faith in new organisations of the nature suggested, and the question is whether any existing institutions can increase their usefulness.

Hollies under Trees (Cambridge).—Hollies grow very well under trees if the shade is not very dense, and especially if the roots of the trees do not deprive the Hollies of the moisture that is essential to their growth. It is often desirable to form a shallow channel for holding sufficient water that may be given from time to time to pass quite below the roots, covering or mulching the surface with manure. Bushy, well rooted plants should be obtained, and one of the best varieties for such positions is sold under the name of "Hodginsi."

Dry Glazing (G. T. H.).—Probably the system you mention would answer, as would Newton's "Reform" method, which is advertised. Orchids have been growing and flowering in a dry glazed house all the winter. You can probably obtain testimonials from the respective firms. We do not approve of rough glass for Cucumbers, but prefer it clear and of good quality. The plants cannot possibly have too much light in winter and early spring, while a little shade can be applied in summer if desirable, though we do not have recourse to the practice,

except occasionally when very bright days follow suddenly a week of very dull weather. As a rule the hotter the summer the better Cucumbers grow and bear in the open air.

Mulching Strawberries with Stable Litter (F. J.).—The stable litter, to keep the fruit clean, should be placed between the rows before the plants are flowering, as it can then be done quite safely; but it is sometimes deferred until the fruit is well advanced in swelling, when from having to move the trusses they are liable to be broken and the fruit to be damaged. It would be preferable to apply the fish manure in advance of the flowering, so that it may be washed into the soil and available for the use of the plants, whereas if given after the fruit is set it will not be so advantageous. It is advised in the prize essay, "Profitable Fruit-Growing," to give an occasional soaking with liquid manure when the fruit is swelling. You would find the wood useful, and it may be had post free from this office for 1s. 3d.

Herbaceous Plants for Cutting (Idem).—Herbaceous plants require some little time to become established before they are capable of furnishing flowers in quantity for cutting. A dozen thoroughly reliable are:—*Achillea Ptarmica* fl.-pl., *Alstroemeria aurea*, *Anemone japonica alba*, *Campanula glomerata dahurica*, *Coreopsis lanceolata*, *Erigeron speciosus superbum*, *Helianthus multiflorus* fl.-pl., *H. orgyalis*, *Lychnis dioica rubra* fl.-pl., *Rudbeckia Newmanni*, *Geum coccineum plenum*, *Galega officinalis alba*. We presume you have such plants as Pinks, Carnations, Picotees, Pyrethrums, single and double; Double Rocket, Delphiniums, German and other Iris, Poonies and Asters, Iceland Poppies, *Anemone coronaria* vars., *A. stellata fulgens*, Phlox; *Lilium longiflorum Harrisii*, auratum, and speciosum vars. Where cut flowers are required in quantity it is well to sow the different varieties of annual Chrysanthemums largely, also Sweet Sultan and Cornflower. The Cactus and Pompon Dablias, Asters, &c., are very useful.

Nationality of Gardeners (Justice).—You neither say whether you are an Englishman, Irishman, Scotchman, or Welshman, and we do not mind in the least to which division of the kingdom gardeners belong, so long as they are worthy exponents of the craft, respectable members of the community, and send good and well written articles to the *Journal of Horticulture*. Some of the best positions in the kingdom are worthily filled by gardeners of every race indicated, and in proportion to population Irishmen and Welshmen contribute as well to this Journal as do Englishmen and Scotchmen. There are representatives of all on its staff, and we do not know of a bappier family. We hope friendly rivalry will continue, and a common bond of brotherhood exist, and be increasingly strengthened amongst gardeners everywhere regardless of origin or creed. This, too, we are convinced is the wish of the overwhelming majority, including yours-elf, and we feel sure that on reflection you will conclude we make no mistake in not publishing your letter.

Tomatoes (Grower).—If you have no worse samples than those sent we should have no fear about the plants not thriving under good management. They are not quite so firm as we like when planted, and you will perhaps not err in letting them remain in the pots another week or ten days. The slight discolouration is, we suspect, the consequence of a temporary check to free sap movement, and we should have no hesitation in relying on the plants for bearing a good crop of fruit. We have not had occasion to try a "mixture of carbolic softsoap and sulphide of potassium" as a dressing for Tomatoes, and if you use it we advise you to proceed cautiously and experimentally with a few plants that you can afford to injure or destroy. The manures you mention are good for Tomatoes, but though you name the quantities you propose using the extent of ground is omitted, therefore we are not in a position to form an opinion on the suitability of the application.

Peach Leaves Scalded (W. J. B.).—We have Peach trees trained to the uncoloured brick wall of a house, and the foliage is quite firm and healthy. We do not know whether what may have been a strong application of Fir tree oil to the wall recently would affect the leaves, but it is never advisable to apply needlessly strong applications of anything to anything when the object in view can be accomplished by weaker. Are you certain that the roots of the trees are equal to their work of imbibing moisture to meet the demands of evaporation? This will be greater than from the trees on the trellis, and more water is required in consequence. The trees may need to be syringed earlier in the morning, in order that the water is dissipated before hot sun reaches them; also sooner in the afternoon, that they may be dry before night. The leaves sent lack substance, as if the trees had been too heavily cropped last year, and if the leaves were similarly injured then it is not unlikely the crop should have been lighter proportionately.

Growing Mushrooms (G. J. B.).—If you cannot obtain suitable manure you cannot grow Mushrooms, and though a man expert at the work would make it pay, even if he be paid the prices you name, a person without experience could not be expected to do so. He might or might not succeed, as there is so much difference in the aptitude of individuals in following instructions. We know a person who pays 7s. 6d. a load for manure and a man for doing all the work, who finds Mushroom growing very profitable, and he would not relinquish it if he had to give 10s. a load for the material, provided it was well adapted for his purpose. The failure you mention was probably not so much the consequence of inferior spawn as of low temperature and possibly weak manure, for it

loses strength by very long preparation. What you collect should not be placed in large heaps to heat violently long before making up the beds or ridges, but should not be spread so thinly as to become cold and drenched by heavy rains. If it can be protected from these in an open shed or under some improvised shelter all the better, but this is not necessary in dealing with large quantities that can be got together in three weeks or a month. The question of increasing and decreasing heat is very simple. So long as a stick inserted in the mass gets hotter day by day do not insert the spawn; when the greatest heat has been attained gradual cooling will follow, and there will be no material increase after that, though sometimes when the spawn commences running, the heat rises a little, but this can be regulated by the better covering. The sixth edition of "Mushrooms for the Million" is much larger and better than the first. You should procure a copy and read carefully. Its price is 1s. 2d. by post from this office.

Reading and Working (A. B. D).—We are pleased to find you agree with us, and we agree with you that great pressure of work must often of necessity leave too little time for reading. We doubt if there is a body of men engaged in any other occupation who work so earnestly and read so diligently as the best gardeners do. We are quite aware that many persons who are employed in gardens, and we regret to say many young men, are the reverse of studious, and prefer to spend much more of what they earn in the frivolities of life than in providing themselves with current and permanent garden literature; but the fact remains that the most intelligent, best informed, and best situated gardeners are men who in their youthful days were zealous in acquiring information. We are very far from suggesting that young men should debar themselves of wholesome and healthy recreation—on the contrary, reasonable enjoyments, in which the mind is for a time diverted from labour, may be conducive to effectual study; but the point we desire to enforce is that the first and primary object of all should be the acquirement of knowledge, both by reading and working, that will fit them for the best positions in the gardening world. If these are not obtained the knowledge gained will never be regretted, while the possessors of it who have to work hard for, it may be, the reverse of high wages will become respected members of the community. We like the tone of your letter very much, as it indicates diligence in duty, with prudence, and the possession of a good share of that most valuable acquisition—common sense.

Nectarines not Stoning (W. B.).—One of those tantalising difficulties and annoyances that beset the most skilled and experienced cultivators is the casting of fruits without apparent cause when the size (as in this case) of pickling Walnuts. The trees are apparently clean and healthy, the wood is not unduly vigorous, and it is firm and well ripened, but still the fruit does not pass the first stages of the stoning process satisfactorily; half, or more than half, the fruits fall suddenly and unaccountably. We have had several cases of a similar nature to contend with, and have invariably found it most prevalent in trees to which nitrogenous manures had been mostly employed. These have a tendency to promote vigour of growth in the early stages. The vigour may not be striking, but it is decided and sufficient to cause abortion. Nothing can be done in the season of growth to prevent its effects on the current crop, although it may be mitigated in severity by allowing disbudding to stand over until a later stage than usual, and remove any growths that are unduly gross. This will effect a higher elaboration of the sap and assimilation by the larger leafage, thereby affording a larger supply of the stone-producing matter to the fruit, and taken in time this mostly proves satisfactory. The remedy, however, is to be looked for in judicious applications of potassic and phosphatic manures in place of ammoniacal or nitrogenous manures, with applications of gypsum, so as to afford lime or preferably ground mineral phosphates (coprolites), and lifting annually until the tree is brought into a thoroughly satisfactory condition, when biennial or triennial lifting may only be necessary. The lifting in all cases should be done when the wood and buds are mature, but whilst the leaves are upon the trees, performing the operation very carefully, so as to give as slight a check as possible, making the soil firm, adding old mortar rubbish, or preferably clay marl if the soil is deficient of calcareous matter.

Insect Eggs on an Apple Tree Branch (Inquirer).—The eggs are those of the Lacey Moth Bombyx (Clisiocampa) neustria. Miss Ormerod gives the following description of the pest:—"The eggs are to be found in winter and spring, laid on naked twigs, in compact spirally arranged rings about half an inch long. From these eggs small black hairy caterpillars hatch about the beginning of May, and immediately spin a web over themselves, which they enlarge from time to time as needed for their accommodation. In these webs they live in companies of from fifty to two hundred, and from them the caterpillars go out to feed on the leaves, returning for shelter in wet weather or at night. When alarmed, they all let themselves down by threads, either to the ground, or else after hanging in the air till the alarm is past they go up again by their threads to the tree. When full fed, which is about mid-summer, they are 1½ inch in length, and hairy; of a bluish-grey colour, marked with two black eye-like spots on the head, two black spots with a scarlet space between them on the next ring, and three scarlet stripes on each side and a white one on the back, all bordered with black along the rest of the caterpillar. At this stage the caterpillars no longer live in companies, but each finds some sheltered spot, between leaves, in hedges, beneath the bars of railings, under roofs of sheds, or even on the top of walls, where it spins a sulphur-coloured silken cocoon, mixed

with sulphur-coloured powder and with hairs from the skin woven into it, from which the moths hatch in July. The moths are variable in colouring, mostly with rusty fox or ochrey markings, but some have the fore-wings of a red-brown, with two pale ochreous streaks; others yellowish, with dark brown bars; and others are variously tinted; the hinder wings are reddish-brown. It is stated that the moths, and especially the females, seldom fly, but remain concealed by day under leaves and in long grass, and come out at night. The caterpillars seldom do the enormous quantity of mischief with us that they are noted as causing in France, where, according to the old law, it was compulsory on proprietors to have the webs on the shoots cut off with shears and destroyed, in consequence of the ravages of the caterpillars (if left unchecked) ruining the Apple leafage over an extent of miles of country; nevertheless their attacks are often the cause of much loss in this country, and need attention."

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*H. P.*)—1, *Adiantum cuneatum* var. *gracillimum*. 2, *Adiantum cuneatum*. (*R. A. C.*)—*Leucocjum vernum*. (*G. T.*)—*Cbionodoxa Luciliae*.

COVENT GARDEN MARKET.—MARCH 19TH.

MARKET still very quiet with early forced goods in fair supply, and prices barely maintained.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2	0	to 6	0	
" Nova Scotia and Canada, per barrel	18	0	25	0	
Cherries, ½ sieve	0	0	0	0	
Grapes, per lb.	2	0	5	0	
Lemons, case	10	0	15	0	
Oranges, per 100	4	0	to 9	0	
Peaches, dozen	0	0	0	0	
Red Currants, per ½ sieve	0	0	0	0	
Black	0	0	0	0	
St. Michael Pines, each..	2	0	6	0	
Strawberries, per lb. ..	4	0	16	0	

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	0	0	to 0	0	
Asparagus, bundle	6	0	12	0	
Beans, Kidney, per lb. ..	1	6	2	6	
Beet, Red, dozen	1	0	2	9	
Broccoli, bundle	0	0	0	0	
Brussels Sprouts, ½ sieve	1	6	2	0	
Cabbage, dozen	1	6	0	0	
Capsicums, per 100	0	0	0	0	
Carrots, bunch	0	4	0	0	
Cauliflowers, dozen	2	0	4	0	
Celery, bundle	1	0	1	3	
Coleworts, doz. bunches	2	0	4	0	
Cucumbers, doz.	4	0	7	0	
Endive, dozen	1	0	0	0	
Herbs, bunch	0	2	0	0	
Leeks, bunch	0	2	to 0	0	
Lettuce, dozen	0	9	1	3	
Mushrooms, punnet	1	6	2	6	
Mustard & Cress, punnet	0	2	0	0	
Onions, bushel	3	0	4	0	
Parsley, dozen bunches	2	0	3	0	
Parsnips, dozen	1	0	0	0	
Potatoes, per cwt.	3	0	4	0	
Rhubarb, bundle	0	2	0	0	
Salsify, bundle	1	0	1	6	
Scorzenera, bundle	1	6	0	0	
Shallots, per lb.	0	3	0	0	
Spinach, bushel	1	0	2	0	
Tomatoes, per lb.	0	6	0	9	
Turnips, bunch	0	4	0	0	

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Acacia or Mimosa, French, per bunch	1	0	to 1	6	
" per basket	3	6	7	6	
Arum Lilies, 12 blooms ..	3	0	5	0	
Azalea, dozen sprays ..	0	6	1	0	
Bouvardias, bunch	0	6	1	0	
Camellias, dozen blooms	1	0	4	0	
Carnations, 12 blooms ..	1	0	2	0	
Christmas Roses, 12 blms.	0	0	0	0	
Chrysanthemums, dozen bunches	0	0	0	0	
Daffodils, dozen blooms ..	0	4	1	0	
Deutzia, per bunch	0	6	0	9	
Epiphyllums, doz. blooms	0	6	0	9	
Eucharis, dozen	3	0	4	0	
Gardenias, 12 blooms ..	12	0	24	0	
Hyacinths (Roman) dozen sprays	0	6	1	0	
Lapageria, 12 blooms ..	2	0	4	0	
Lilium, various, 12 blms.	2	0	4	0	
Lilium longiflorum, 12 blooms	5	0	8	0	
Lily of the Valley, dozen sprays	0	6	1	0	
Marguerites, 12 bunches	2	0	to 6	0	
Maidenhair Fern, dozen bunches	4	0	9	0	
Mignonette, 12 bunches ..	2	0	4	0	
" Fr., large bunch	1	6	2	0	
Narcissus, French, 12 bunches	1	0	3	0	
Pelargoniums, 12 trusses	1	0	1	6	
" scarlet, 12 bunches	6	0	9	0	
Primula (double) 12 sprays	1	0	1	6	
" (single) 12 sprays	0	6	1	0	
Roses (indoor), dozen ..	1	6	3	0	
" Red, 12 blooms ..	4	0	8	0	
" Tea, white, dozen ..	1	0	3	0	
" Yellow	2	0	4	0	
" French, per bunch	1	6	5	0	
Spiraea, dozen bunches ..	6	0	9	0	
Stephanotis, dozen sprays	0	0	0	0	
Tuberoses, 12 blooms ..	1	6	2	0	
Violets, dozen bunches ..	1	0	2	0	
" French, per bunch	1	0	2	0	
" Parme, per bunch	3	0	4	0	
White Lilac, French, per bunch	4	0	6	0	

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0	to 12	0	
Arum Lilies, per dozen ..	12	0	18	0	
Arbor Vite (golden) doz.	6	0	14	0	
Azalea, various, per dozen	18	0	30	0	
Christmas Rose	0	0	0	0	
Cineraria, per dozen ..	8	0	12	0	
Cyclamen, per dozen ..	9	0	18	0	
Daffodils, 12 pots	6	0	9	0	
Deutzia, 12 pots	6	0	9	0	
Dracena terminalis, doz.	24	0	42	0	
" viridis, dozen ..	12	0	24	0	
Epiphyllum, per dozen ..	0	0	0	0	
Erica, Cavendishi, per pt.	2	0	3	0	
" various, dozen ..	12	0	18	0	
" ventricosa, per doz.	18	0	30	0	
Euonymus, var., dozen ..	6	0	18	0	
Evergreens, in var., do en	6	0	24	0	
Ferns, in variety, dozen ..	4	0	18	0	
Ficus elastica, each	1	6	to 7	0	
Foliage plants, var., each	2	0	10	0	
Genista, per dozen	8	0	12	0	
Hyacinths, 12 pots	6	0	9	0	
Lily of the Valley, 12 pots	18	0	30	0	
Marguerite Daisy, dozen	6	0	12	0	
Mignonette, per dozen ..	0	0	0	0	
Musk, per dozen	0	0	0	0	
Myrtles, dozen	6	0	12	0	
Palms, in var., each	2	6	11	0	
Primula (single), per doz.	4	0	6	0	
Rhodanthe, per dozen ..	0	0	0	0	
Roses (Fairly), per dozen	10	0	12	0	
Saxifraga pyramidalis, per dozen	0	0	0	0	
Solanums, per dozen ..	6	0	12	0	
Tulips, 12 pots	6	0	9	0	



MANGOLDS.

FOR its full development this crop requires a season of about five months ; but excellent crops may be produced in four months, and this valuable root is worthy of a trial in every locality where that period of genial weather may be relied upon. Very useful roots are to be had in the shorter period, but there is no doubt that in a favourable climate autumnal showers impart much additional weight to the roots, and the best crops of Mangold are obtained where the sowing is possible early in April, and the roots are not clamped till the middle of October. We were able to manage this at our home farm last year, and we certainly never had a better crop.

In very fertile soil Mangolds answer well if sown upon the flat ; but we have a decided preference for sowing upon the ridge, because of the greater certainty of a crop. With the roots established in moist rich farmyard manure growth goes on steadily through vicissitudes of weather which, to say the least, do much harm to the crops on the flat. The Mangold is a gross feeder, and it is useless to attempt its cultivation without plenty of manure, or rather in soil that is deficient in fertility. A reliable authority has shown that the chief manurial elements withdrawn from the soil by a full crop per acre is of nitrogen 147 lbs., potash 300 lbs., and phosphoric acid 52 lbs. Well, but farmers are not chemists, and we will not ask them to enter upon difficult calculations as to the precise quantity of each of these essential elements of fertility which they must place in the soil before sowing the Mangold seed, but rather to consider the condition of the seed bed, and endeavour to form a sufficiently clear idea of its manurial requirements. If it had a full dressing of chemical manures for a corn crop last year, and has had annual dressings of manure previously, then from fifteen to twenty cartloads of dung in the furrows will suffice without any addition of chemical manures ; but if the soil is so exhausted of fertility as to contain very little residue from former applications, then both dung and chemicals are indispensable. We repeat the formula of chemical manures per acre which we gave on page 100— $\frac{3}{4}$ -cwt. muriate of potash, $1\frac{1}{4}$ cwt. nitrate of soda, 2 cwt. steamed bone flour, 1 cwt. common salt, and 1 cwt. mineral superphosphate.

The process of cultivation is as follows :—Make the furrows 30 inches apart with the double-breasted plough, place the dung evenly in the furrows, cover it by splitting the ridges with the same plough, press down the ridges slightly with a light roller, drill the seed (7 lbs. per acre) with the chemical manure mixture, follow with the light roller to press the soil well upon the seed. In mixing the manure for drilling the nitrate of soil must be well broken up with the back of a shovel, and the entire mixture passed through a sieve to prevent any stoppage of the drill. A sharp look out must be also kept in sowing, to see that seed and manure are sown in a regular uniform manner. Negligence in this matter is bound to appear eventually, every stoppage of a coulter leaving a blank space in the rows, which is subsequently in evidence throughout the season. Weeds and Mangolds spring up together, and the hoes must be at work soon after the plant is fully visible along the rows. A rather light quick-stepping horse and a light patent expansion horse hoe are best for this work between the rows, and hand-hoeing of the rows and plant-singling should all be paid for by the acre, the minimum outlay for hand work being 6s., any increase in the cost being caused by the foulness of land, for there must be persistent hoeing till the weeds are got under. More than once we have tried to withdraw the hoes during the hay-making, but this cannot be done if the land is foul, and it is much

better to keep the hoes steadily at work, for if they are once withdrawn haymaking is so engrossing that it is difficult to arrange to spare any of the men from it till it is ended.

Repeatedly have we seen it advised to withhold nitrate of soda from the sowing, and apply it subsequently as a top-dressing after the plants are up and growing freely. This is a mistake, because the action of soda so used is very speculative, and in a drought it would do no good ; but drilled with the other manure and the seed, it enters the soil sufficiently for its moisture to act upon it as a solvent, and there is no possibility of any serious loss of nitrogen then.

Do not forget that our object is the dual one of obtaining a full crop of roots for winter food, and a thorough cleansing of weeds from the land. This is really a sensible sort of fallow, by means of which we get rid of weeds without any thought of such folly as resting the soil. On the contrary, it is stored with sufficient fertility for the demands of the Mangolds, and there is an ample residue left for the corn crop which follows next season, to this there is some slight addition from the Mangold leaves that are ploughed in immediately after the crop is cleared off.

WORK ON THE HOME FARM.

As the Turnip folds are finished the ploughs follow closely and the corn sowing is done at once. Where the land is at all heavy and a fine seed bed for Barley is doubtful, Black Tartarian Oats are now used as a more suitable, more certain, and more profitable crop. We recently heard it laid down that sheep-folding was a good preparation of land for Oats. Why, of course, said one, and we were only too glad to find Oats were taking a legitimate place among other crops, and that really good land was being used for them. Land intended for Mangold that was not ridged in the autumn has had the duck-foot harrow over it two or three times to break the cap and render it friable for the seed. A few hours' exposure to wind and sun then brought it into capital condition for the ploughs to follow. The dung carts are busy on every favourable opportunity carting dung from the yards to the furrows, and the work is so forward that we now feel tolerably assured of being able to get in the seed early next month.

The area of land usually devoted to roots will be much reduced on the heavy land farm this year, and forage plants are being sown instead for silage. Our special aim in this work is a heavy crop ready for clearance between haymaking and harvest. Calculations may be made with tolerable certainty, as silage requires no harvesting. All we have to do is to get as heavy a crop as we can, to mow, stack and press it right off when it is fully grown. Simple enough, is it not? We may add that it is equally sure, and we may give expression to a feeling of certainty that tenant farmers of such land will eventually discontinue cultivating expensive root crops and turn altogether to silage for their chief supply of winter food. The usual mixture of Oats and Tares with the addition of a bushel of Italian Rye Grass makes splendid silage if sown now and stacked in July. We have recently had pleasing evidence that our advice about silage has been turned to good account, and we would urge all who can spare a few acres of land to give it a trial. The whole thing is a certainty, and it forms a wholesome, nourishing addition to the dietary of both sheep and cattle at a nominal cost in comparison with that of hay and roots.

ERRATUM.—In the Home Farm article last week, page 232, the following mistake occurs :—In Mr. Sanders Spencer's dietary for pigs "Broad Bran" has been printed "Broad Beans."

METEOROLOGICAL OBSERVATIONS.

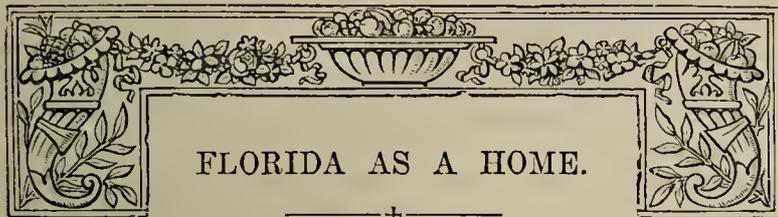
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.				Rain.			
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
March.		Dry.	Wet.			Max.	Min.	In sun.	On grass.	In.		
1890.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.			
Sunday	9	29.833	39.4	34.8	W.	39.3	44.9	34.1	36.3	28.1	0.168	
Monday	10	30.202	40.9	40.2	S.W.	37.9	51.4	30.4	59.9	24.8	0.098	
Tuesday	11	30.251	50.8	47.5	S.W.	39.9	55.9	40.4	36.8	39.7	—	
Wednesday	12	30.367	45.4	44.3	S.W.	41.1	53.0	39.3	36.9	33.0	—	
Thursday	13	30.052	44.8	41.3	S.W.	41.6	43.1	40.9	51.9	34.2	—	
Friday	14	29.845	44.2	41.2	E.	41.3	56.2	39.1	34.7	33.3	—	
Saturday	15	29.638	47.8	46.4	S.	41.8	54.5	42.7	31.3	35.1	—	
		30.027	41.8	42.2			40.4	52.8	38.1	80.1	32.7	0.266

REMARKS.

9th.—Generally fine and bright with one or two showers of snow or hail.
 10th.—Very wet till 10.30 A.M., then dull and drizzly; fair evening.
 11th.—Generally cloudy in morning; bright afternoon and evening.
 12th.—A lovely spring day; mild and almost cloudless.
 13th.—Overcast throughout.
 14th.—Slight fog till 10 A.M., then bright.
 15th.—Cloudy early; bright and fine after 11 A.M.
 A week of fine spring weather. Temperature 3° above that of the preceding week and nearly 5° above the average.—G. J. SYMONS.



FLORIDA AS A HOME.

AS regards climate Florida is one of the best favoured countries in the world. Since the termination of the great American civil war fruit culture has taken the place of that of cotton, the mild climate and balmy atmosphere of this beautiful Southern State being most congenial to the requirements of the Grape Vine, Orange, Peach, Strawberry, and other fruits, the culture of which is the chief industry of the country, and is annually increasing in importance. Florida, however, is no country for a regular farmer. Cattle run wild in the woods; hogs also, and such hogs! They go by the name of razorbacks, and are appropriately named, for they are almost as thin as a razor on edge. Having to live on anything they can pick up in the woods they fare badly, and consequently are in the habit of sneaking around cultivated groves at night, and if a loose picket or rail can be found in the fence in they go, and if there are any "Sweet Potatoes" within a quarter of a mile the razorbacks will root through the rows from end to end. As the country is now becoming rapidly settled, many coming in from Northern States, considerable agitation is going on, and an attempt is being made to pass a herd law to compel the owners to keep their cattle and hogs within their own land, and prevent trespass and damage. The passing of this very desirable Act is only a question of time. Local markets for farm produce are limited, the population being too small, consequently fruit growers have to rely on northern and western markets for disposing of their produce. The first crops of the year are Strawberries, the second crops of the year are Peaches. Here we grow the earliest Peaches in the United States, and a grove of the earliest varieties will realise a very good income in spite of the excessive railroad charges for conveying them to New York, Boston, Philadelphia, Washington, Baltimore, and other northern and western cities.

Strawberries are extensively grown in this vicinity (Waldo) and also at Starke and Lawtey in the adjoining county Bradford. Hundreds of acres of the Nunan Seedling and Hoffman Seedling are grown, and as the land is heavily fertilised with commercial manure the crops secured are enormous, and for the earliest shipments 1 dol. to 75 cents. per quart are realised. The later shipments realise 50 cents., or 2s., down to 15 cents., or 7½d. per quart. Below that price few are shipped, as the transportation charges swallow too much of the amount which the produce commission agent gets for them, and the growers then sell all they can in the local markets for preserving, or canning as it is called here, and use the remainder for home use. Most of the Strawberry plantations are mulched with Pine leaves, or Pine needles as they are termed. These keep the ground moist and the fruit from the sandy soil, and so the berries are picked clean and in fine condition. I have travelled considerably both in Europe and on this western continent from extreme northern New York to the republic of Salvador in Central America, indeed as far south as the Isthmus of Panama, which I have crossed twice, but nowhere have I seen any climate where Strawberries bear fruit continually from the middle of January to the middle of June except in Florida. Last year, 1889, I took down into Waldo the finest Strawberries ever seen in the town raised from seed of Filbert Pine sown the previous July under the shade of a thin canvas, which prevented the young tender leaves being scorched by the hot sun of August. These seedlings were planted out in rows in October, and the plants were fringed

round with berries as close as they could hang, and appear to be much more prolific than the American varieties. Thanks to friends in England I am now growing all the best early, midseason, and late varieties cultivated in the mother country.

The earliest Peach to ripen in Florida is the Peen-To, or Peen Tau, imported some years ago from Australia by Mr. Berkman, a nurseryman in Georgia, and is now in almost all parts (except the extreme south) of the State. This is a flat Peach, like an Apple, very much flattened at the eye and stalk, and contains a small round seed slightly flattened at both ends, like the Peach itself. The flavour is very refreshing, is sweet, with a very slight trace of bitterness. It is said by some to be of Chinese origin, by others from Afghanistan, "having been seen growing there by Aitchison." Many seedlings of this Peach have been raised in this neighbourhood, most of them being the ordinary Peach shape, and some of them are a great advance in quality, size, and flavour. Amongst them may be named Bidwell's Early, Kite's Seedling, Yum Yum, Maggie, Dickerson, and The Waldo—the last not yet generally disseminated, and if it continues its present free-bearing character will be numerously planted. I have seen this week (first week in March) shoots 18 inches long, which are the growths of buds inserted into an old Peach tree last summer, now bearing twelve Peaches within a space of as many inches on the branch. The second Peach to ripen of a distinct race from the Peen Tau and its seedlings is the Honey Peach, said to be from Japan. The fruit is of moderate size, highly coloured, with a curved suture at the point; is very sweet, without any acid, and by many would be considered insipid. This Peach has evidently been used to hybridise the Peen Tau, and has resulted in the seedlings already named. To illustrate the precocity of Peaches here and their free-bearing characteristics I may just mention that it is a common practice with this variety to plant Peach seeds in February, and in May the following year get a small crop of a dozen or twenty Peaches from the seedling tree.

Following the strains of Peaches already named (Peen Tau and Honey) come Dickerson, ripening in June; Onderdank, July; Freestool, August; and for canning and evaporating September Peach, Thomas Peach (October), the individual fruits of which frequently attain to a weight of 1 lb.; November Peach, as well as other numerous varieties of less note, ripening every month from the middle of May to the end of November, the several varieties being planted in separate rows 15 feet apart, and at the same distance from tree to tree in the row, according to their time of ripening. The earliest Peaches shipped, of course, realise the best prices. When the main crop is being sent to market a clear profit of 1 dollar per crate, containing one-third of a bushel of fruit, is as much as can be obtained after all expenses of picking, packing, crates, transportation and commission charges are deducted. As the trees are very prolific Peach growing pays even at the sum indicated, and as the rates of transportation are about to be reduced the growers will henceforth secure more money for their crops.

There is a fine opening for gentlemen of capital to start a large plantation of two or three hundred acres of Florida native freestone Peaches for preserving and evaporating. There are large tracts of land, formerly cotton plantations, but which have not been cultivated since the war between North and South. This ruined thousands of cotton planters in Florida, whose capital consisted solely of land and slaves, and the Act of Emancipation left them without the means to work the land, which can now be bought from 10s. to £1 per acre. These places are, however, eight to twelve or fifteen miles from the railroads, which accounts for the low price of the land. The ground thus neglected has become covered with Pine saplings, and would require clearing again, but the cost would be infinitesimal in comparison to clearing the regular forest land. Peach trees can be bought for five cents to ten cents (from 2½d. to 3d.) according to the variety, and as they are

planted 15 feet apart each way, it would require 193 trees per acre. Negro labour can be had for fifty cents (2s.) to one dollar (4s.) per day without board, and in consequence of the soil being of a loose sandy character a much larger area of land can be cultivated in a day than in other States, where it is of a stiffer nature.

An evaporator would be required which would dry from fifty to 100 bushels of Peaches per day. This could be obtained for £20 or £30. The Peaches being planted in varieties as indicated to ripen following each other, the rush of drying would not all come at once, as there are, as already stated, many suitable varieties ripening in different months, and other varieties are continually being discovered in out-of-the-way places, and propagated by nurserymen who are always on the look out for Peaches of this class, whether new or old.

An idea of the paying character of a large orchard of this kind may be obtained by ascertaining the price of a pound of dried Peaches in one of the many good stores in England. If the fruits grown here were evaporated, boxed up, and shipped direct to England to some good wholesale firm all intermediate commissions might be saved.

As to the time the trees would take to reach a bearing state I have an instance in mind now, where a man planted in January, 1884, 200 Peach trees budded a few months before (about September, 1883), the buds being dormant at the time of planting. In April, 1884, the buds had all grown, making bushy plants. The ground was then fertilised with artificial manure. In May and June of the following year the trees bore sufficient fruit to pay for the cost of the trees, cost of planting, and cost of the fertiliser, and the following year, 1886, the net or clear income from these same 200 trees was 40 dols. He used all the fruit he required himself for dessert and preserving, and also made a barrel of vinegar.

The Loquat, which is incorrectly known in the Southern States as the "Japan Plum" or "Japan Medlar," ripens in April and May, and is a very refreshing slightly acid fruit, but good crops of this fruit cannot be depended upon every year in consequence of the blooms being partially (sometimes totally) destroyed by the slight frosts we have in December, January, and February, which is not, however, severe enough to injure Orange trees materially, the youngest tender growth only being cut off.

Figs are perfectly at home in Florida, many varieties being grown, and all succeeding well. The varieties grown are White Celeste, White Marseilles, Brunswick, White Genoa, Blue Genoa, Brown Turkey, and Black and Green Ischia. The trees bear good crops, but very few large plantations of Figs are made, the people only growing a few trees for the fresh fruits for their own use. Whether Fig culture can be made a paying crop, either as fresh fruit for shipment or for drying and boxing, is yet to be proved. The Mulberry and Pomegranate trees bear splendid crops of fine fruit every year.

The Kaki (*Diospyros kaki*) is one of the most successful of the imported fruits, and splendid crops of it are grown about Waldo. The trees are so prolific that they are sometimes killed by being allowed to ripen too heavy crops annually. The Kaki grafted or budded on the Florida native Persimmon (*Diospyros virginiana*) and a bud or graft one year old from the time of budding or grafting is 7 to 8 feet high and 2 feet through, with fine glossy leaves and covered with fruit buds all along the stems. Yemon is the variety most generally grown, and in appearance is very like a well-grown specimen of the Trophy Tomato. Hachiya is the largest of all cultivated varieties of the Kaki, exceptionally fine fruits sometimes weighing as much as 20 ozs. Growing this fruit is likely to be one of the best paying industries in Florida, as there are so many luscious varieties, and when it becomes better known it is sure to have a large sale.

In many varieties, both European and American, Grapes are grown and succeed as well in Florida as anywhere in the United States. On this side of the Atlantic the foes of the Grape are

mildew and black-rot. Grape-growing is a great industry here, but as I have already covered more space than I intended, my remarks on this luscious fruit can be briefly given in another paper. However, in concluding this, it may prove interesting to state that we have been gathering Roses of the Maréchal Niel, Belle Lyonnaise, Niphotos, Sunset, Queen of the Bedders, Gloire de Dijon, and William Allen Richardson, some of one variety every alternate day since the middle of January. We also have been enjoying large solid heads of crisp Lettuce. Paris White Cos, as large as good sized Cabbage, and although it has been so dry (only having had rain once) since the Lettuce seed was sown, strange to say nothing is suffering, the dews are so heavy that Cabbages are as though sprinkled with diamonds or silver frost at six o'clock in the morning, and the dew can be beard dripping slowly from our shingled roofs. A hot and moist atmosphere is seldom experienced here.—W., *Waldo*.

BUSY TIME IN KITCHEN GARDENS.

OVER-ZEALOUS gardeners and inexperienced amateurs are apt to make at least two very great blunders, for both of which they are almost certain to pay rather dearly. Many err greatly in sowing seeds in too great a hurry, and not unfrequently too thickly. We have had a comparatively light rainfall this year. I do not remember ever seeing clayey soils in such excellent working order in February, and had we been so disposed the bulk of the seed sowing and Potato planting might have been completed then. But instead of being tempted into committing that blunder we preferred rather to fork over much of the already well pulverised ground, so as to bring what lumps there were underneath to the surface, these also being in a finely divided state. Ground thus well prepared will not only be favourable to the germination of seeds generally, and well fitted for the reception of the delicate tap roots, but it will also stand against either a very wet or very dry summer better than would have been the case if we had been misled by the state of the surface only.

The last few days in February and the beginning of March were of such a wintry character as to quite damp the ardour of many who had made up their minds to commence seed sowing in good earnest, and on the whole this sudden burst of exceptionally cold weather must be considered as a blessing in disguise. A fine seed bed is in all cases desirable, but warmth is a most important factor in the strong and even germination of seeds, as well as in the rapid growth of tender seedlings. Any in the act of sprouting or even further advanced will have fared badly in the late severe weather, and it may be desirable to raise plants of several vegetables under glass for early crops. Seeds of Broccoli generally, Cauliflowers, Savoys, Chou de Burghley, and Borecole, if sown in the open late in March or early in April may produce plants large enough for putting out long before the ground is ready for their reception, and are practically spoilt accordingly. Better by far defer sowing till the end of April or even early in May, and in this case there is a much greater likelihood of all being planted before they become too tall to move or do well.

Marrow Peas especially are liable to decay if sown in cold heavy soils much before the middle of March, and it is unwise to bury many seeds of Kidney Beans before the third week in April, while the still more delicate Runner Beans may well be kept out of the ground till the first week in May. If either are wanted earlier raise the requisite number of plants under glass, transfer to the open in due course, and protect from frosts and cold winds. Should large Onions or Leeks be needed, sow seed of suitable varieties in heat; but an even and serviceable crop of bulbs can best be assured by sowing the seed on well-prepared ground at the end of March or early in April, in preference to doing so much earlier, or when most generally advised. Beet, other than a pinch of Turnip-rooted for an early supply (this being sown early in April), ought to be kept out of the ground till late in that month or early in May, or there is every prospect of the crop being both patchy and coarse; nor, for the same reasons, should the main crop Carrots be sown long before the end of April, this also being a good time to get in Salsafy, Scorzonera, and Chicory. Only small quantities of early Turnips ought to be sown at one time till July is reached, when there is less likelihood of premature seeding taking place.

We know from experience gained that it is easy to err in planting Potatoes too early. In order to obtain an early if light crop a few rows of a quick-maturing variety may well be planted on a warm border or in any convenient sunny position, the haulm in this case be protected in some way; but the bulk of the early varieties ought to be kept out of the ground till late in April, or even

the first week in May. The start should be made with the later varieties, following these with the second earlies, and finishing up with the Ashleafs. Thus treated there is a possibility of all escaping spring frosts, and which are so prejudicial to the crops of Potatoes.

Whilst deprecating sowing seed too thinly, as this may end in disappointment, I wish especially to condemn the wasteful and unwise practice of sowing it very thickly, the only exception being in favour of Mustard and Cress. In most cases it is necessary to sow rather more thickly than it is advisable that the plants resulting should remain, there being so many insect enemies, birds, and other contingencies to provide against; but that is no excuse for rushing to the other extreme. Crowded rows or beds of plants involve much additional labour in thinning, while the plants reserved are much weakened by close contact with their neighbours, and badly loosened when the thinning-out takes place. Too often the latter process is deferred unduly, or it may be not carried out at all, and in any case if more judgment had been exercised when the seed was sown the ultimate results would have been more satisfactory.—W. IGGULDEN.

INSECTS OF THE FLOWER GARDEN.

(Continued from page 150.)

STROLLERS along the paths of a country garden in the dusk of a spring evening are frequently saluted by the hum of the common dor, or watchman beetle (*Geotrupes stercorarius*), which has, in fact, no particular business to be there, but it is somewhat erratic, and appears at times to wander about aimlessly. Another peculiarity of the species is, that although it is an insect of the night, it will now and then take excursions during daylight, incurring perils from its inability to guide itself about, so often getting knocked down, perhaps trampled upon. It is a harmless visitant to gardens. The object of its peregrinations is a search for cow droppings, amongst which the eggs are deposited, and the larvæ or grubs feed. I have mentioned this species, because I find some persons fancy the beetles injurious to flowers or buds, as certain beetles are, but the dor eats nothing at all.

The species next to be described is indeed a destructive insect in all its stages, though I fancy it is less abundant now than formerly, decidedly less common than on the Continent, where beetles and grubs are frequently swept up in bushels. This is the cockchafer (*Melolontha vulgaris*), the life of which, as a beetle, does not last many weeks, though in that time it makes some havoc amongst trees and shrubs by devouring their leaves in those places where it occurs. But it is the larva that is responsible for damage done to some of the lawns in our gardens, also attacking fields of grass and corn, receiving in some countries the name of the "white grub." It lives deep in the soil, feeding upon the roots, and feeds ravenously for three years, probably having a short period of repose in the winter. This is a remarkably plump grub, when unearthed it appears feeble, but is not really so; the legs are small and not much used, its chief implement being the mouth, which has sickle-shaped jaws. One of the best means of destroying it in grass plots is the application of diluted ammonia, put on when the ground is moist. Birds eat them eagerly, but only a few, like the rook, are successful in digging them out. On the Continent this larva is reported to attack the roots of Vines, also those of many choice plants in nurseries; no instances of this kind, however, are recorded in Britain, so far as I can ascertain.

The garden beetle, or bracken clock (*Phyllopertha horticola*) is quite as much at home in the flower garden as in the orchard, though I do not know that it shows partiality for any species of Fern, so as to explain the second name. A third name for it is the June bug, that being the month when it visits fruit trees, gnawing the young fruit, and in gardens bites the petals of the Rose and some other flowers. This beetle is about half an inch long, with dark green head and thorax, the wing cases are reddish brown. If alarmed, they assume a rigid position as if dead, sticking out the legs right and left. It is a good plan to look after them with a lantern in the evening, where signs of their doings are noticeable. The larvæ or grubs feed, like those of the cockchafer, at the roots of various plants. Apart from the frequent appearance amongst our beds and borders of the beetles we now reach, forming the group of the click or skipjack species, I should have no doubt that their larvæ were injurious to our flowers, from the well-known voracity of these pests, and their tendency to spread themselves in all directions. Then in the flower garden they escape notice for several reasons, and when they are perceived they are sometimes taken to be false wireworms—*i. e.*, millipedes, of the genus *Julus*. These have the same narrow elongated bodies as the larva of the skipjack beetles have but they are not quite so wiry, also the legs

are numerous, while in the true wireworms there are only six, very short. The death of many perennials is to be attributed to the unseen proceedings of these wireworms, which, commencing by an attack on the roots of a plant, afterwards make for the crown or stem, and which they penetrate, and the plant soon declines.

Of the various species of *Agriotes*, such being the scientific name for these beetles, I believe the grey and black species, *A. lineatus*, is commonest in our beds. Its larva has been noticed swarming in leaf mould, from which, if overlooked, it can easily migrate to the plants placed in this substance. Many have been the methods suggested for the destruction of wireworms. It is not easy to kill such tough insects and yet leave the rootlets of the plants unharmed. Gas lime, diluted so as not to injure the plants, does not affect the wireworm; one of the best remedies is irrigation with the compound liquor of petroleum, which has been already fully described here. From the wireworm tribe we proceed to a small division of soft-bodied beetles with serrated horns, some of which are abundant in flower gardens. One of the insects in this group that has a familiar history is the glow-worm, sometimes supposed to be the only luminous British insect, but this is not the case. Recent observations have proved also that the winged males possess a light as well as the wingless females and the larvæ, which light they can conceal at will. This species is generally found in lanes or grassy banks near woods, but I mention it because entomologists have suggested the species should be introduced into gardens, and it would be a pleasant sight to see a lawn or flower bed lit up by these pretty insects on a summer evening. An instance has been given of a glow-worm having been kept alive for months in a garden, and probably if secured from some of their natural enemies of the bird order they might increase rapidly. Moreover, it is certain they would be useful insects, because the principal food of the glow-worm is small snails and slugs.

Allied to the glow-worm are the beetles of the genus *Nelephorus*, of which Britain has twenty species. They are familiar to young and old during the sunny season of the year, when we see them crawling upon the heads of umbelliferous plants, or on showy flowers like the Dahlia and Sunflower. Although they can fly they are best at running, and when in the air they are easily caught by the hand. The children have long named the two groups of them "Soldiers" and "Sailors," the former being of red hue, the latter blue, or blue with black markings. In habit they are alike, being active and carnivorous, killing a variety of small flower-haunting insects. It was a favourite trick with boys to match a soldier and a sailor, for though relations the beetles are quite ready to combat each other, indeed two of the same species will fight till one is slain. However the *Telephori* rank amongst the useful garden insects, both as beetles and as larvæ, for in the larval state they live amongst grass and low herbage through the winter and spring, preying upon earth worms and other grubs that may fall in their way. I have now and then heard in a garden shed or tool house the curious tap of a tiny beetle belonging to this family, bearing formerly the ominous name of "death-watch," in science it is *Anobium striatum*. The sound is wonderfully loud for the size of the insect, and it is supposed to be made by the beetle when boring to discover how near it is to the surface of the wood, or else as a signal from one to another. Some very pretty though not large beetles of the *Clerus* family illustrate another aspect of beetle life. The native insects are fond of displaying themselves in gardens, but their larvæ live in the resorts of other insects. Some of them live in the tunnels made by the grubs of other beetles; one curious species, called *C. apiarius*, is notable because its larva is a foe to the hive bee, creeping from cell to cell and devouring the bee grubs. How the parent beetle manages to deposit the eggs without the bees interfering is rather mysterious.—ENTOMOLOGIST.

BOUVARDIAS.

My thanks are due to your correspondent, "T. S.," (page 156) for his criticism of my article on this subject on page 12. His chief remarks are in favour of planting out *Bouvardias*, and he regrets I did not say more about this method of culture. I am glad that I did not, for your correspondent has described a method that is excellent in every way, and one I could readily follow with certainty of success if I favoured planting them out. I have grown them planted out much further north than this, and they have flowered profusely enough. I have planted them out here in Lancashire, and they have been most satisfactory. In wet cold seasons they have been the reverse, and therefore I urged that system which had proved most reliable with me, and which I thought would be best for general practice. Since growing them in pots I have been compelled to remove them from the position in which they have been plunged outside to the protection of frames or a cool house. A few cold days or nights, especially if the weather is wet, soon starves them, the active fibres fail, and the wood of the plants hardens prematurely. The point upon which we mainly differ is about checking the

plants by lifting them. What I consider a serious check to the plants is evident that your correspondent does not. I may be a little too sensitive for their well-being, for I do not consider it is necessary that the plants should flag to arrive at the conclusion that they have been seriously checked.

It would interest me to know why your correspondent partially lifts them a fortnight or so before finally lifting them for potting. No doubt, any roots that are broken by this operation will have time to form fresh fibres nearer home. The plants are also practically brought to a standstill, and therefore less liable to suffer when lifted afterwards. What is this but a check to the plants? and if not, why take the precaution to soak them with water and syringe frequently to prevent flagging?

On page 134 "S. Y." takes exception to the soundness of a two-years system of raising these plants. I am not surprised, for at one time I should have questioned the wisdom of carrying out the practice I have advised. But circumstances alter cases, and experience has convinced me that a two-years system of raising plants would be much more suitable for the majority than raising the plants from either roots or cuttings, and have to depend upon producing good plants the same season. My advice, therefore, was intended for the many, not the few. In a large number of gardens where a great many plants have to be grown, and glass accommodation is limited, there is not the convenience either to propagate early or even to push the plants rapidly into growth. Many that are raised from roots in boxes are by the end of the season as strong as the pencil with which I am writing, and often 18 inches to 2 feet in length. These start strongly and even vigorously into growth, and if pushed on early are strong plants by the time cuttings are rooted. Time is not lost; on the contrary, two months are practically gained over raising plants from cuttings, unless the previous season is counted. At any rate, they are strong, with their first pots practically full of roots by the time cuttings are potted singly. For all with limited glass accommodation, small growers and amateurs, one-year-old Bouvardias to start with are the best. I have nothing to urge against raising the plants early and growing them in one year where there is convenience for early propagation and the accommodation of the plants afterwards.

The size of pot in which the plants are grown is not sufficiently reliable upon which to found any judgment either of the size of the plants or the manner in which they flower. It is not uncommon to see plants in 4½ or 5-inch pots superior to others in pots 2 or 3 inches larger. I am no advocate for overpotting. The size of the pots in the case of the plants grown by "S. Y.," depends entirely upon keeping them under glass the whole season. With the size, "7 and 8-inch," that your correspondent advises, they might almost as well be placed out. Plants with almost unlimited root room are certain to make strong growth, though if placed outside, they would not fill the pots with roots or ripen sufficiently to flower profusely.

Pinching is practised a month later than I advise, and this is necessary where they are raised from cuttings and allowed to run up a foot or more before they are pinched. By the system of pinching I have advocated we have bushy examples by the time your correspondent has run up his plant high enough for pinching. "S. Y.'s" principle of culture is not new, two years ago plants were grown here exactly in the same way, but the object was different. I wanted strong plants for yielding strong roots in quantity for stock, not flowers. The plants were grown rapidly the whole season, and had they been given a light suitable position for solidifying their wood, they would have flowered profusely. But not one in a thousand have the convenience for encouraging the plants to make growth the same as our plants did that season. My advice, therefore, on page 12, was written for the guidance of the inexperienced and purposely to suit the greatest number of cultivators, to whom freeing their houses of the plants for two months or more during the season would prove an advantage.—WM. BARDNEY.

HORTICULTURAL BUILDINGS AND HEATING APPARATUS.

[A paper read by Mr. Henry Hope, horticultural builder, at a meeting of Birmingham Gardeners' Association.]

As the words "horticultural buildings" comprise a variety of structures which of necessity differ in form, size, and purpose, I propose to divide this portion of my paper into the following parts:—Conservatories (as exhibition buildings), fruit-growing houses, plant and flower houses, and propagating houses. But before entering into the detail of these different classes, I should like to treat upon the history of horticultural buildings and heating apparatus from the earliest records we have down to the present century.

HISTORY.

In looking back at the history of horticultural buildings it is not uninteresting to observe the progress of the industry of glass-making. The origin of glass is uncertain; it dates from a high antiquity. The Egyptians were acquainted with the substance 3500 years ago, and if we may trust the representations in Theban paintings glass vases were used for holding wine 1490 years before the Christian era. The glass of Egypt was generally opaque, specimens bearing the name of an

Egyptian queen of the year 1445 B.C. being in existence. After the Egyptians the Phœnicians were the most renowned for skill in this industry. The fact that at Nineveh, Herculaneum, and Pompeii specimens of glass of different kinds have been found is a conclusive proof that glass was pretty generally known to the ancients, and renders it almost an impossibility to ascribe the invention to any particular nation.

Early in the thirteenth century glass-making was practised by the Venetians, and from them it extended to Germany and France. The earliest manufacture of plate glass in England was begun in 1673, and from that date down to 1846 a duty was imposed on all glass made in this country. I will further on describe the different kinds of glass as now made and used.

The records of greenhouses before the eighteenth century are very meagre indeed, and I think only a few solitary cases of buildings erected for horticultural purposes are known. As lately as the commencement of the present century ponderous structures were erected by wealthy people having about the same proportion of glass in their construction as the Birmingham Town Hall, and indeed some of these have come under my notice being on a smaller scale, very much like this building, having a heavy cornice of classical design with a pediment front and lead roof with plaster ceiling, the light being admitted through windows in the sides, which were divided by brick or stone piers. These buildings were known as conservatories.

About the year 1700 greenhouses with brick sides and glass roofs, mostly of the "lean-to" pattern, were erected in gentlemen's gardens throughout England. These were mostly constructed of timber and glazed with crown glass in squares about 4 inches wide. A very expensive method of constructing greenhouses was adopted in some gardens. It consisted of mahogany framework eased in thin copper. This system soon proved to be as inefficient as it was expensive, as the wet got in between the metal casings and the wood, causing rot. Small-sized glass was used almost without exception down to the year 1846, when all duty on the article, both excise and customs, was abolished. A Birmingham manufacturer named Jordan was, to the best of my knowledge, the first person who made a business of horticultural building, and he was, in fact, the inventor of those metallic houses of iron framing and copper sashes. Messrs. Jones & Clarke were an offshoot of this business, which was eventually carried on under the style of Clarke & Hope. About the year 1820 metallic houses came into very general use. The best of these were constructed of framing and sashes, the framing being of cast iron and the sashes of wrought iron and copper. A less expensive method was to build them entirely of wrought iron, with ordinary section of T and L iron, the opening lights only being made as sashes. I do not think I need treat further of the history of horticultural buildings, as, although I am aware that I have only touched lightly upon this branch of the subject, time will not permit me to go further into it.

It is almost unnecessary to say that the methods of planning and erecting greenhouses has advanced in the last century with as rapid strides as any other trade to which English business men have devoted their attention, and whereas fifty years ago anyone wishing to build any garden houses would most probably have been compelled to plan them himself, and erect them by his own estate workmen, he can now command the services of at least a dozen first-class firms who make such work a speciality.

With regard to the heating of buildings by artificial means, I can only give the history comparatively small attention, as although the subject is a very large one, and open to much discussion, I think I cannot do better than confine myself to the methods that have been used, and are now in use, for the heating of horticultural buildings proper. The baths in the ancient Roman villas were, we know, heated by means of a circulating hot-water apparatus; thus even as far back as before the Christian era, the same principles were applied by which, at the present day, we carry out hot-water heating.

The first greenhouses that were built, about the year 1700, of which I have just spoken, were heated either by hot embers placed in holes in the floor and covered with a plate, or by brick flues, mostly the latter; and indeed this latter system has been used, more or less, down to about the year 1850.

The heating of greenhouses by hot-water apparatus was first adopted about the commencement of the present century, and most of these old apparatus that have come under my notice were constructed on much the same principles that are in vogue at the present time—viz, saddle form of boiler and large bore pipes, which is really what is now known as the low-pressure system, as opposed to the small-bore or high-pressure

system. The different kinds (some patent) of apparatus now manufactured by hundreds of firms, are innumerable; but as far as my knowledge goes, those who have been longest in the trade, and whose work has been pretty uniformly successful, nearly all strongly advocate the low pressure form of heating apparatus for horticultural buildings.

BOILERS.

I will now describe the component parts, and to commence with the boiler, I consider that a saddle form of boiler (either wrought or cast) set in brickwork, is very serviceable for horticultural purposes; for small ranges plain saddles, and for larger work terminal-end flued saddles. There are several patent boilers manufactured by different firms which answer their purpose exceedingly well, notably Weeks and Co.'s tubular boiler, which is composed of a ring of vertical tubes set in a fire-brick well and fed from the top; the larger ones are in two halves, and have water-way fire-bars. Messrs. Weeks have fixed these to work some exceedingly large apparatus, and from what I know of them they are very powerful boilers. Steam boilers and pipes were tried for large ranges of houses, but did not prove successful, as the heat from a steam pipe, being of a scorching quality, is not good for plant life. Some of these apparatus being put in by country firms gave a vast amount of trouble in the working, as steam traps were not brought to the perfection they are now, and consequently the condensed water collecting in the pipes stopped the heat, and in many cases split the pipes badly.

A great deal has been said about wrought versus cast boilers; the question really resolves itself into whether it is worth while, on account of the great durability of cast boilers, to run the risk of their liability to crack, as wrought boilers, although not so long lived, are not likely to crack, and consequently the latter have greatly superseded cast iron, as the cracking of a boiler may be of a very serious nature to the contents of the houses, especially if the accident occurs in frosty weather.

However good a boiler may be, good results cannot be obtained unless it is properly set and has a proportionately sized stack. The cause of many boilers not working properly is simply that the flues or the chimney are too small. The next portion of an apparatus which claims our attention is the main pipes. These should be of large bore; the old-fashioned method of putting small bore mains being a great mistake, throttling the circulation and putting much more strain upon the boiler than if the mains were large enough to allow the water to go ahead freely. Valves should always be pressure-tight and placed in both flow and return pipes to thoroughly stop the circulation. Air pipes are always preferable to air cocks, as being self-acting it is an impossibility for any air to collect in a properly constructed apparatus. The hot-water pipes should be placed on proper rollers, so to allow them to expand and contract freely.

BUILDINGS.

Having touched generally upon heating apparatus, I will now proceed to the different classes of horticultural buildings, together with the suitable interior fittings and heating appliances for each class. Commencing with conservatories as exhibition buildings, I can of course lay down no hard and fast line as to their construction, as individual circumstances always dictate their own conditions. As a general rule a conservatory is placed against the dwelling, with an entrance to it if possible from the drawing room. The design should always harmonise as much as possible with the architecture of the house, and a very good effect can generally be obtained without using unnecessarily heavy timbers, which is a very frequent fault in architectural conservatories. The sides of a conservatory should always if possible be twice as high as an ordinary plant house, and should be glazed with clear glass. Lead light work may in some designs be used in the transoms, but only very sparingly, and in any case only light twist. The glass in the roof of a conservatory should as a whole be either rough rolled plate or obscured sheet, as this will very often save the necessity of blinds.

Ample ventilation in the sides and roof should be provided, the lights to open simultaneously by a mechanical appliance. Shafting levers and screwgear are, I think, the safest and most easily worked of any that have come under my notice. The most convenient and general form for planning the interior of a conservatory is by placing staging for small plants about 2 to 3 feet on a level with the sill all round the glass front or sides, a border being placed against the back wall, and the wall and roof wired for creepers. The floor can either be laid all over with stone or tiles with the hot-water pipes in a trench all round, covered with cast-iron gratings, or a large bed or beds can be left in the middle for planting large Palms, &c. The quantity of hot-water pipes should never be overdone for a conservatory, as being only an exhibition house care

should be taken that it is a temperate one, the plants in bloom retaining their freshness much longer in a cool and well ventilated house than in a warm and stuffy one.

(To be continued.)

FRITILLARIA (KOROLKOWIA) SEWERZOWI.

THIS curious and interesting bulbous plant was first described in Regel's "Gartenflora," tab. 760, as Korolkowia, but was eventually reduced to Fritillaria by Mr. Baker in his revision of the Liliaceæ. In the figure referred to above the flowers are given as being very small, of a greenish yellow colour, and, as will be seen by our woodcut (fig. 33), some improvement in size at least has taken place since its introduction. The present species is extremely interesting, and is, moreover, a relief from the lurid tessellated forms so prevalent in collections. The habit also is most distinct, the bold glaucous foliage and yellowish green



FIG. 33.—FRITILLARIA (KOROLKOWIA) SEWERZOWI.

flowers being attractive in groups. The variety bicolor (Gartenfl., 1181), called discolor in gardens, is a distinct improvement on the species, and well worth securing for collection. The whole plant is more robust, the flowers being considerably larger, bright yellowish green with a distinct reddish brown mark at the base. Both are quite hardy in English gardens, but usually flower too early. They should be planted in a dryish position in light sandy soil. Natives of Turkestan.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 223.)

THE cultivation of Apples alike for home use and for market is of two kinds—viz., dwarfs, which comprise bush, pyramid, espalier, and cordon, horizontal, diagonal, or vertical methods of training; and large or standard systems. On the merits of the rival systems I do not intend to make any lengthy observations, but it is patent to all cultivators and observers that the finest fruit is produced by trees on the dwarf system, which is mostly, if not entirely, due to the favourable conditions of soil and location, to the greater pains taken in preparing the soil for the trees, and to the subsequent cultivation. Large or standard culture is of a most primeval character—viz., a hole is dug and a tree stuck in, and then it is left to Nature, no means being taken to increase its fertility or improve the quality of the fruit. I propose to make a selection from the varieties previously enumerated (which may not be the best, but I shall be happy to hear of better, and if objection is taken to any let it be stated on what ground), both for small or

large culture, or the dwarf or standard systems, and before proceeding it may be advisable to state that the deductions are taken from the actual performance of the trees, and the produce estimated by their reasonable value. To judge winter and spring Apples in autumn is not feasible, as it admits of no true estimate of their relative and special value, except of course from knowledge previously acquired. All, however, are not competent to reason from analogy, and the best test to which the generality of growers can put any subject is the practical, as it is by that tribunal the produce will be ultimately judged. The consumer has no "tender mercy" to bestow on an inferior variety and indifferent produce, and will pass sentence according to the relative utility of the product. What may suit the grower may not suit the customer; hence the latter's preference for the finer and sweeter American Apples, for as men advance in civilisation and wealth they lose their liking for crabs, and acquire a taste for the sweet refreshing juice of Apples.

My first point, therefore, is unprofitable fruit trees. Apples are grown unsuited to the taste and requirements of the consumer. True, well grown produce meet ready acceptance in the markets, but what is it in comparison to the general bulk of Apples marketed? The produce of trees grown in gardens on the dwarf or in orchards on standard trees where intelligent culture is practised may be profitable. What of the great number of trees that comprise the English orchards? Perhaps with an area ten times exceeding that of cultured fruit gardens and orchards not a tenth of their produce is fit to place in the markets. This, in part, from unsuitableness of variety, the clinging to kinds that may have been profitable in their day, but which from the increased inter-communication of growers adopting the better of the old and adding approved new varieties, have become obsolete and unprofitable. Perhaps nine-tenths of the varieties as grown in the gardens of cotters and in the orchards of farmers have, compared with imported produce, no value in the markets. It will bring a price no doubt, as there are those that must buy equally indigent with those that must sell at a price; but the placing of inferior produce in the market only assists the importer and consumer, as it causes the superior article to sell, not prejudicially affecting its price, whilst the inferior brings a poor price if it have not to be given away or disposed of at a sacrifice, so that if not an actual loss the labour of gathering, storing, and marketing is inadequately repaid.

The way out of the difficulty through the variety is to change. If the variety be good and pays leave it alone. Never mind about its name, although there is delight in knowledge, but stick to it as proved suited to the soil and situation, and one only to be displaced upon practical demonstration of other's superiority in all or a majority of points. Adopt some standard: there is no higher than that which commands the readiest sale and best price in the market, for there is seen the outcome of opposition and competition much more decisively and instructively than in exhibitions. In most cases it will be noticed that the varieties seen to the front are comparatively few. Growers that compete for prizes at exhibitions and those for market grow but few sorts; the first aims at excellence irrespective of crop, but the grower for market must have a combination of quality with quantity, therefore grows but few sorts, and those the most productive.

SELECTION OF VARIETIES FOR DESSERT OR KITCHEN.

Dwarf Culture or Trees on Paradise stocks—the Broad-leaved and Nonesuch being, perhaps, the best. These trees are very fibrous rooted, and it is by the roots rather than the head that restriction of over-luxuriance and the inducing of a free-cropping habit is to be sought; indeed, pruning now must not be much practised if the trees are to pay, confining it to shortening the long shoots and thinning the others, so as to allow all parts of the trees to be fully exposed to the direct influence of the sun's rays and the action of the weather. Close by "cropped" or cut-in trees may afford a plentiful crop of blossom, but more frequently leaves. Something more is expected of fruit trees. To get the fruit the growth must be sturdy, thoroughly assimilating the aliment by exposure to light, air, and rain, and storing up food in the wood and buds in order to procure fruit when it is a matter of feeding in order to acquire the enviable position of pleasing everybody.

Pyramids.—Early: Lady Sudeley, Wormsley Pippin. Mid-season: King of the Pippins, Yorkshire Beauty, Lord Derby, King of Tomkins County. Late: Rhode Island Greening, Dutch Mignonette, Balchin's Pippin, Allen's Everlasting.

Bush.—Early: Duchess of Oldenburgh. Mid-season: Peasgood's Nonesuch, Baxter's Pearmain, American Mother, Fearn's Pippin, Hornead's Pearmain, Adam's Pearmain, Reinette de Canada. Large Bush: Cox's Pomona, Nelson Codlin, Harvey Apple, Gravenstein, Emperor Alexander. Small Bush: Small's Admirable. Late: Calville Malingre. It may be noted that Harvey Apple or Dr. Harvey is similar to, if not identical with, Golden Noble and Waltham Abbey Seedling, or if differing due in variation to soil

and location; also, Yorkshire Beauty is confounded with Red Hawthornden. The Yorkshire Beauty is the Greenup's Pippin of Dr. Hogg's "Fruit Manual," fourth edition, page 65 (I haven't the later or fifth edition), where it is very accurately described. It is also known as Cumberland Favourite, Palmer's Glory, and under other names. Adam's Pearmain blooming late escapes spring frosts when others suffer.

Cordons (horizontal, diagonal, or vertical on Paradise stock).—Lady Sudeley, Wormsley Pippin, Cobham, Peasgood's Nonesuch, Lord Derby, Dr. Hogg, King of the Pippins, Small's Admirable, Baxter's Pearmain, Reinette de Canada, Lane's Prince Albert, and Veitch's Sandringham. The last two, with Lord Derby and Dr. Hogg, also Peasgood's Nonesuch, may not please all tastes at dessert, but some relish a brisk acidity, and a large baked Apple, whilst everybody admires their noble appearance on occasion at table. Small's Admirable has a pleasing acidity. Dessert or kitchen.—Large culture or trees on Crab stocks, in which the pruning is confined to shortening or cutting out irregularities, and to thinning out the branches.

Espaliers.—Worcester Pearmain, Harvey Apple, Emperor Alexander, Baxter's Pearmain, Gravenstein, Harvey's Wiltshire Defiance, King of Tomkins County, Royal Pearmain, Rhode Island Greening, Dutch Mignonette, Stamford Pippin, and Allen's Everlasting.

Walls or Fences with east or west aspect, and all points between following the sun—i.e., from east to west. On a southern aspect (but only in the north, the south is too hot) the size, colour, and quality is superb.—Yorkshire Beauty or Greenup's Pippin, Washington, Northern Spy, Melon Apple, Melrose, The Queen, Sandringham, Dr. Hogg, Reinette de Canada, Lane's Prince Albert, King of Tomkins County, and Calville Malingre. If grown on low walls or fences the trees should be on the Paradise stock.

Standard.—Early: Lady Sudeley, Worcester Pearmain, Wormsley Pippin. Mid-season: Cox's Pomona, King of the Pippins, Emperor Alexander, Harvey Apple, Nelson Codlin, Melrose, Harvey's Wiltshire Defiance, Lady Henniker (which does not do on a wet heavy subsoil), Royal Pearmain, Baxter's Pearmain, Lewis's Incomparable, Hornead's Pearmain, Lemon Pippin, and King of Tomkins County. Late: Rhode Island Greening, Dutch Mignonette, Stamford Pippin, London Pippin, Allen's Everlasting, Hambleton Deux Ans, Barnack Beauty, and Balchin's Pearmain. Hambleton Deux Ans is not a great bearer in a young state, but not so great a sinner in that respect as Blenheim Pippin and Bess Pool, yet it (Hambleton Deux Ans) may not inaptly be taken for a green and late variety of Blenheim Pippin. Blenheim Pippin is a first-rate variety, the best of its season for either dessert or kitchen use from a marketing point of view, but those planting must wait at least a dozen years before the returns can be considered remunerative—in fact, it is a landlord's Apple. Bess Pool is a shy bearer when young, quite as bad as Blenheim Pippin, with the disadvantage that it does not bear the crops it might, and appears capable of doing when it attains its majority, otherwise they are varieties of unexceptionable value in their respective seasons, if indeed they have any equals. Regrafting, though tending to earlier cropping, is not so effective with these as with some other kinds, yet those who have kinds that are inferior through variety may with advantage be regrafted with Blenheim Pippin, and these will come into profitable bearing in about half the time that is required to obtain them by planting young trees, and singularly the fruit is finer and brighter in colour, but of this I shall treat in due course.

SELECTION OF DESSERT VARIETIES.

Dwarf Culture or Trees on Paradise Stocks.—*Pyramids*.—Early: Irish Peach, Kerry Pippin. Mid-season: King of the Pippins, Cox's Orange Pippin (does not succeed on cold wet subsoils), Fearn Pippin, Golden Reinette (requires a well drained soil), Claygate Pearmain (succeeds in heavy soil, where Ribston Pippin fails). Late: Rhode Island Greening, Court pendû Plat, Boston Russet, Allen's Everlasting.

Bush.—Duchess of Oldenburgh, American Mother, Adam's Pearmain, Mabbott's Pearmain, Margil, and Scarlet Nonpareil form highly prolific small bushes.

Cordons.—Horizontal, diagonal, or vertical: King of the Pippins, Cox's Orange Pippin, Fearn's Pippin, American Mother, Golden Reinette, Melon Apple, Claygate Pearmain, Margil, Court pendû Plat, Boston Russet, Scarlet Nonpareil, and to make up the dozen interlope Sturmer Pippin, which has been excluded through its being affected with a disease (fungoid) which is equally disastrous to flowers, foliage, and fruit.

LARGE CULTURE OR TREES ON CRAB STOCKS.

Espaliers.—Irish Peach, King of the Pippins, Cox's Orange Pippin, Fearn's Pippin, Adam's Pearmain, Golden Reinette, Clay-

gate Pearmain, Boston Russet, Mabbott's Pearmain, Rhode Island Greening, Court pendû Plat, Stamford Pippin, Allen's Everlasting.

Standards.—Irish Peach, Kerry Pippin, King of the Pippins, Cox's Orange Pippin, Fearn's Pippin, American Mother, Golden Reinette, Court pendû Plat, Rhode Island Greening, Golden Russet, Stamford Pippin, Allen's Everlasting. Of the above Cox's Orange Pippin, American Mother, and Golden Reinette must have good well drained soil and warm situation. Golden Russet also prefers a light soil.

SELECTION OF KITCHEN VARIETIES.

Dwarf Culture or Trees on Paradise Stocks.—*Pyramids.*—Early: Keswick Codlin, Lord Suffield, Cellini. Midseason: Alfriston, Golden Noble, Grenadier, Yorkshire Beauty. Late: Dumelow's Seedling (eankers badly in heavy soil with a wet subsoil), Lane's Prince Albert, Gooseberry Apple.

Bush.—Early: Royal Codlin, Lord Grosvenor, Stirling Castle (a bad grower and scabby in many localities; Niton House is a larger fruit and better grower, but is a later and a better keeper). Midseason: Beauty of Kent (eankers on wet cold soils), Betty Geeson, Hollandbury, Lord Derby, Hormead Pearmain, Round Winter Nonesuch, Tower of Glamis, Warner's King, Emperor Alexander forms a large bush, and Small's Admirable a compact one. Late: Annie Elizabeth, Flanders Pippin, Lane's Prince Albert, Minchull Crab, Norfolk Beefing (does not succeed on a cold wet subsoil), Rymer. Cordons, horizontal, diagonal, or vertical: Lord Grosvenor, Lord Suffield, Potts' Seedling, Betty Geeson, Golden Noble, Grenadier, Peasgood's Nonesuch, Small's Admirable, Welford Park Nonesuch, Lord Derby, Round Winter Nonesuch, Lane's Prince Albert.—G. ABBEY.

(To be continued.)



EVENTS OF THE WEEK.—The March Spring Shows in the metropolis will be brought to a conclusion on Saturday, the 29th inst., by the Exhibition at the Crystal Palace, Sydenham, where an extensive display is expected. The Society meetings comprise the Royal Society on Thursday, March 27th, at 4.30 P.M., and the Quckett Club on Friday, March 28th, at 8 P.M.

— **THE WEATHER IN THE SOUTH** has been variable, with heavy rain and rather high winds on several days. Slight frosts have occurred in early morning, but the temperature has been generally fairly high for the season.

— **THE WEATHER IN SCOTLAND**, March 17th to 24th.—Last night 2° of frost were registered; on the morning of the 20th 2°. While the weather has been dull generally, one or two days have been partly or throughout very fine, yesterday (23rd) particularly so, the sunset being strikingly beautiful. The bloom of Crocuses has been extremely good, and is all but over. Other spring flowers are in grand bloom. The green tint is quite perceptible on the hedges in this part of S. Perthshire.—B. D.

— To an American journal Mr. George Nicholson, Curator of the Royal Gardens, Kew, has recently contributed a series of letters, entitled "HOLIDAY NOTES IN SOUTHERN FRANCE AND NORTHERN ITALY," in which he has given interesting descriptions of the gardens visited and the plants noted. In a recent letter he describes the Villa Thuret Garden at Antibes, which is under the management of M. Naulio, for experimental purposes in testing tropical and subtropical plants suitable for outdoor cultivation in France.

— **ROYAL BOTANIC SOCIETY OF LONDON.**—At a meeting of this Society, held on Saturday, Mr. G. J. Symons, F.R.S., in the chair, the donations reported included an interesting collection of seeds from the far-famed gardens of Mr. Thomas Hanbury at Mortola, on the coast near Ventimiglia, Italy, with printed catalogues of the great variety of plants and trees from all climes growing in the garden, more than four thousand named species.

— **THE BRITISH FRUIT GROWERS' ASSOCIATION.**—A meeting was held in the Town Hall, Ellesmere, Salop, on Saturday, March 22nd, at 7 P.M., by members of the above Association and the local society.

Brownlow R. O. Tower, Esq., occupied the chair and Mr. J. Wright delivered a lecture on Profitable Fruit Culture, which greatly interested a large audience. Several other members took part in the discussion which followed, and the meeting is pronounced to have been highly successful.—L. CASTLE, *Hon. Sec.*

— **THE LATE MR. JOHN WEBSTER.**—Will you permit an old reader of this Journal to say a few words about the above named well-known horticulturist? As probably some of your readers know he died early in the present month at the age of seventy-six, and had been in charge of the gardens at Gordon Castle for nearly forty years. He was born at Blanerne, in Berwickshire, December 8th, 1814, and commenced his gardening career at Manderston, and subsequently spent some time at Dalquharran Castle Gardens, at Whittinghame and Claremont. His first place as head gardener was at Eartham, in Sussex, and thence proceeded to Gordon Castle in 1850, where he has remained ever since, and gained considerable reputation as a skilful practical gardener.—B.

— IN addition to the above we have also to chronicle the recent deaths of DR. RALPH AINSWORTH of Manchester, in his 79th year, and MR. THOMAS HARRISON, Senr., of Leicester, head of the firm of Harrison & Sons, seedsmen, of that town.

— UNDER the title of the "JOURNAL DES ORCHIDÉES" M. Lucien Linden of Brussels has commenced a serial work on Orchids, which is to be published on the 1st and 15th of each month. The number before us comprises twenty pages of matter dealing with the history and culture of Orchids, by M. Rodigas; an article on white-flowered varieties of *Lælia anceps*, and several chapters on practical subjects. It is published at 100, Rue Belliard, Brussels.

— **CERTIFICATES FOR GARDENERS.**—When the proposed Hall of Horticulture is a reality and in working order I hope to see the examinations as formerly carried on by the R.H.S. again revived, so that young gardeners may be able to obtain certificates of their abilities. Why should not this be again taken in hand? It has a direct bearing on horticulture. Those who gain their certificates should afterwards, through the influence of the Society, be registered, and when in want of a situation be recommended by the Society, and due prominence given to the fact that the R.H.S. will recommend gardeners to those in want of them. As one who passed the examinations, and took first-class certificates in 1869, I venture to make the above suggestion.—H.

— **THE "CARTER" FAMILY OF CHRYSANTHEMUMS.**—In reference to the use and non-acknowledgment of one of our illustrations in a trade list, as mentioned on page 241 last week, Messrs. James Carter & Co. point to the fact that in the first edition of their list Mrs. Carter was included, and the illustration acknowledged; but the plants selling so rapidly compelled them to omit this variety from the second edition, and the removal of the type reference to our engraving, as applied to the other varieties, was purely accidental. The illustration equally well displays the character of these varieties, as the only difference between the trio is in their colours—one being described as straw, the other reddish brown and gold, the third pure white. The explanation is perfectly satisfactory, and we have no doubt these varieties, with their distinct thread-like florets, will find favour with many cultivators and floral decorators.

— **REGRAFTING ORCHARD TREES.**—I can fully endorse the remarks of "W. I.," page 236, on regrafting orchard trees, but where there are whole orchards of healthy trees I do not think gardeners want advice as to the merits of regrafting with superior varieties, as to that course they are fully alive. No doubt 90 per cent. of the fruit plantations which have been recently planted are where no other fruit trees previously existed. The system of grafting which "W. I." recommends is not by any means new. It is the general system adopted for many years by the farmers and cottagers of Worcestershire. I have been led to make these remarks in case readers of the Journal may think that the system recommended has only just been found out. It may be new to "W. I.," but to Worcestershire farmers and cottagers it is a very old practice, but nevertheless it is the best and quickest method.—A WORCESTERSHIRE MAN.

— WE have often referred to the value of COOL PLANT HOUSES, especially in the early spring months, as there are so many beautiful plants that in our uncertain climate are very liable to be damaged out of doors, though a little protection renders them quite safe. The cool house in the herbaceous department at Kew has been very gay for some weeks, and the following list of plants in flower will give an idea of what a varied display can be produced. *Drabas Mawi*, *lasiocarpa*, and

aizoides; Cyclamens Coum, ibericum, Atkinsi and repandum; Brodiaeas uniflora and porrifolia; Hepaticas triloba in variety and angulosa; Ranunculus anemonoides; Tulipa Kaufmanniana; Saxifragas Rocheliana coriophylla, Boydi, oppositifolia, oppositifolia alba, Rudolpbiana, macropetala, luteo-purpurea, Malyi and imbricata; Primulas birsuta, ciliata, denticulata, denticulata alba, Fortunei, Palinuri, marginata, obconica, floribunda, and pubescens alba; Chionodoxas cretensis, sardensis and gigantea; Crocus many species and varieties; Bulbocodiums in variety, Anemone apennina alba, Scillas taurica and campanulata, Iberis saxatilis and gibraltarica, Korolkowia Sewerzowi, Linum arboreum, Fritillaria tulipifolia, Hyacinthus azureus, Sisyrinchium grandiflorum, Daffodils in variety, Helleborus orientalis, &c.

— GARDENING APPOINTMENT.—Mr. James Findlay, foreman, Castle Howard Gardens, has been appointed gardener to Sir Charles M. Palmer, Bart., M.P., Grinkle Park, Loftus-in-Cleveland, Yorks.

— MR. GEORGE PAUL writes—"MY BOG GARDEN has been a great success. I saw to-day in it most of the plants showing well, including Sarracenas, Orchis foliosa four or five sorts, double Marsb Marigolds, Primulas rosea and denticulata, Spiræas, the larger American Cowslips, North American Lilies, and a nice bed of Cranberries, the big common kind."

— ON Tuesday evening, the 18th inst., there was a large attendance of members of the CROYDON GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT SOCIETY to hear a paper by Mr. Lewis Castle on "Hybridisation in Plants." Mr. C. S. Bowman occupied the chair. A thoroughly enjoyable evening was spent, and several members took part in the discussion which followed.—G. W. C.

— WINCHESTER HORTICULTURAL SOCIETY.—Preparations are being made for a Summer Show of more than ordinary magnitude in the ancient city, to open on July 8th. The schedule comprises forty-seven classes—namely, ten for plants, twenty-four for Roses, and the remainder for fruit, decorations, and vegetables. The chief prizes are £10, £7, and £4 for twelve specimen plants; £6, £4, and £2 for eight specimens; £4, £3, and £1 10s. for forty-eight Roses, with substantial amounts in various other classes. Mr. Chaloner Sbenton is the Honorary Secretary.

— THE WEATHER IN THE NORTH has been unfavourable for sowing seeds. No sowing of any kind on farms has taken place yet, but the early seedtime does not always bring the earliest and best harvest. In 1827, the year following the "short corn year," the memorable 3rd of March a heavy fall of snow took place, and another on the 23rd April, which lay till the 15th of May, being the first day seed was sown, while much snow was about. Yet that was one of the most bounteous seasons and early harvests on record. It is not the continuation of wintry weather that causes late and poor harvests, but fine weather early in the year succeeded by extreme cold in May and June.—W. T., Lanarkshire.

— THE CARDIFF CHRYSANTHEMUM SOCIETY.—The annual meeting of this Society was held at the Black Lion Hotel, Cardiff, on Friday evening, March 21st, a large number of members being present. The Secretary reported that the Society was in a flourishing condition, the balance in hand being £59 19s. 10d. The following were elected officers for the ensuing year:—President, the Marquis of Bute; Hon. Sec., Mr. C. R. Waldron; Assistant Secretary, Mr. F. Searl; the old Committee was re-elected, with Mr. T. Malpass Chairman and Mr. A. Bishop Vice-Chairman. It was resolved that the Society be affiliated with the National Chrysanthemum Society, and decided to hold the next Show on November 18th and 19th, 1890.

— NATIONAL CHRYSANTHEMUM SOCIETY.—May I invite the co-operation of Chrysanthemum growers in the efforts that are now being made by the Special Committee of the National Chrysanthemum Society—viz., Mr. Lewis Castle, Hotham House, Merton, Surrey; Mr. George Gordon, 1, Stile Villas, Wellesley Road, Gunnersbury; and Mr. C. Harman Payne (Hon. Sec.), 60, Thorne Road, London, S.W., in the preparation of an entirely new edition of the N.C.S. Catalogue? The National Chrysanthemum Society have good reason to be satisfied with their last publication in 1888, both as regards the acknowledged advantages of its classification and other general information, and also the sale, which has considerably more than balanced the cost incurred; but it is desired that this new edition should be even more improved, while several fresh features will be added. With this end in view I venture to ask for space for this note, in the hope that many who are interested in the work of the N.C.S. will lend us their assistance by offering sug-

gestions, and specially by affording any information as to synonyms or errors, either of omission or commission, in the previous editions. Such information will be welcomed by either of the gentlemen forming the Committee.—WILLIAM HOLMES, *Frampton Park Nurseries, Hackney, London.*

— BIRMINGHAM GARDENERS' ASSOCIATION.—At the fortnightly meeting of the Association, March 18th, Mr. W. Stevens, The Gardens, Walton Grange, Stone, read a paper on "Odontoglossums, Varieties and Cultivation," and contributed cut specimens of Odontoglossums Cervantesi, Andersoni, gloriosum, luteo-purpurea, Alexandræ, Rossi, &c. It appeared to be a very interesting well thought out paper, and short cultural remarks with each of the various species of Odontoglossums were given. In reply to questions as to fumigating Orchids, Mr. Stevens did not particularly recommend smoking unless with dry tobacco paper, and then not if they had been shut up in a close house for a week or more. He recommended for thrips the application of a little dry sulphur with a camel's-hair pencil as a cure, and in dividing Orchids to smear the cut in the rhizome with dry charcoal dust to prevent bleeding. Much very useful information was given as to the best method of ventilation for Orchids, shading for cool Orchids, and the best materials. Amongst the latter, an application in very hot weather of flour and cold water, not too thick, and put on when the glass is dry, was recommended. Mr. Powell, gardener to G. H. Kenrick, Esq., exhibited a plant in bloom of Dendrobium endocharis, one of Messrs. Veitch and Sons' hybrids, and the result of a cross between aureum and moniliforme; also a fine plant of D. Devonianum, imported in February 1887, with seven leading growths 4 feet long, with fifty-seven expanded blooms upon it. Mr. Powell also sent a bloom of Amaryllis Favorite (Veitch), a flower rich in colour and grand in form.

— PRESTON SPRING SHOW.—The Show, which was held on the 19th and 20th insts., was the best spring display that has been seen at Preston. Every class was well represented, but the principal feature of the Exhibition was a magnificent bank of Orchids and Ferns set up by Mr. George Beddoe, gardener to E. G. Wrigley, Esq., Howick House, Preston. Too much praise could not be given to this excellent display. The plants in this exhibit covered a space not less than 70 feet by 12 feet, the whole length of the orchestra. In previous years this space has been admirably filled by Mr. Troughton of Preston with a choice miscellaneous bank. The groups arranged for effect by nurserymen and gentlemen's gardeners were never better. The specimen stove and other plants were also excellent examples of high-class culture, Mr. Frisby of Worden Hall being the principal prizewinner in these classes. Mr. J. B. Dixon, however, ran him pretty close in a few of the leading classes. Mr. Lamb's table plants were admired by all. Hyacinths and other bulbs were better than in some seasons. Primulas were very fine indeed. The second prizetaker for the group of Orchids, Mr. Chas. Baker, exhibited most creditably, and when we consider his display is the outcome of leisure hour culture, it speaks well for the great attention he must devote to them. He has been an exhibitor of Orchids in keen competition for many years. Mr. Payne of Fulwood was the most successful exhibitor in the nurserymen's classes, and his Azalcas have been for many years the admiration of all.—A. W.

LANDSCAPE GARDENING.

[Read at a meeting of the Cardiff Gardeners' Association by Mr. Kettlewell.]

(Continued from page 239.)

ROCKERIES.

THERE are few gardens that do not possess a rockery, and I would venture to say that some of them are out of place. If there happens to be a vacant shady place in a garden, that is at once a suitable position for a rockery. The distinguishing element of all rockeries should be rusticity. No fused bricks or scoriæ should be used in its construction, as is often seen in town gardens, but the materials and stones used should be of a conspicuously natural character, and should never lie with their ends or points placed upwards, but flat, thus giving an appearance of solidity and strength which is only in accordance with what Nature teaches us. The surface of the whole cannot be too irregular or indented, and is in the gradual dying away, so to speak, of rockery with a few loose masses of stone scattered here and there, rather than in an abrupt ending, that the skill and observation of a landscape gardener come into play. In a rockery Ferns are an essential requisite, and to grow Ferns well shade is necessary; but if a rockery be accompanied by a small pool of water having a rugged margin, gold fish to

add a little life and movement to the picturesqueness may be kept, and some of the rarer kinds of aquatic plants grown; besides this the moisture arising from such a sheet of water would be very beneficial to many rock plants. Among the shrubs suitable for a rockery may be mentioned most shrubs with trailing habit, such as Ivy, Cotoneaster microphylla, Periwinkles, some kinds of Berberis; climbers also, such as Clematis, Virginian Creeper, and the better sorts of Brambles, if they are carefully pruned so as not to stifle the smaller plants and Ferns, are pleasing adjuncts to the bolder parts, while varieties of the green-leaved Holly, Arbutus, and Junipers, will be ornamental evergreens to give colouring to the scene.

PARKS AND LODGES.

The last special department on which I should like to write a few words is that of parks and lodges. Much greater care and attention is required to effectively form and plant a park well than to design a garden, inasmuch as the trees and materials with which one works are on a holder and grander scale. If, then, the clumps or plantations are injudiciously placed or are too numerous they look blotchy and become offensive to the eye. If there are too many specimens scattered about the whole looks "spotty" and contrary to Nature. On the other hand, if the clumps are too narrow and thin and the specimens too few there is a bareness and baldness, which is as faulty and out of character as over-planting. The glades of a park should be broad and undulating, the plantations at their margin bold and rich in clothing. Specimen trees should chiefly be attached to those clumps which stand alone in a glade, in order that it may have an appearance of continuity, and not seem to end too abruptly and artificially. A park should not be considered as an isolated factor in a design, but must be in unison with the other parts, and represent an intermediate link between the dressed portions of a garden and the wilder, freer, and bolder characteristics of Nature.

In close proximity to the garden the ground should have a certain degree of smoothness and ease, the clumps richer than the outside boundaries, thus assisting a gradual and almost imperceptible transition between the wilder features of Nature and the more polished scenery of the garden.

A few words as to the trees most serviceable for park planting. For specimen trees nothing will surpass some of the Abies, especially the Abies Douglasi. Quercus Ilex, Cedar of Lebanon, Red-flowering Horse Chestnut, Cedrus Deodara, Taxodium distichum, Purple Beech, Elms, English Oak, Scarlet Oak, and Sycamore are also useful in this respect. Very showy shrubs or trees are, however, inadmissible in a park, as they interrupt the gradual transition from Art to Nature. The commoner kinds of Thorn, Holly, Yew, Box; in chalky districts the common Juniper, Furze, Broom, and Privet, Berberis aquifolium, are among the most useful for planting in the clumps. To these may be added the common Oak, Elm, Beech, Hazel, Mountain Ash, common Whitebeam, Spruces, Scotch Fir, Austrian Pine, and many others.

Lodges should never be seen from the house, and therefore are seldom needed in a demesne of limited extent, as the drive to the mansion should be long enough to hide the lodge from view. The lodge should be placed on the side which has the best view of the road and drive, and for that reason the inner side of the curve would be most suitable supposing that the drive curves at all. A few flowers and shrubs would be an appropriate accompaniment to a lodge, as they give the dwelling a pleasant, bright appearance. A bank of shrubs and trees around to screen it, with a few specimens at the margin, also gives the dwelling a park-like appearance, and prevents the building being staring and out of character with its surroundings.

PRACTICAL TREATMENT.

It is with a few suggestions on the practical treatment of a garden that I purpose bringing to an end this paper on the art of landscape gardening. First of all, with reference to the outline of work in laying out grounds, it is essential if land of any extent is to be laid out, whether it be a public park, cemetery, or garden, that a definite plan of arrangement on a sufficiently large scale be first decided upon, as it is much easier to judge the proportions of the various parts of a design on a plane surface, such as paper, than on the natural surface of the ground. Sections where the ground is very uneven should then be drawn out from levels previously taken, the vertical scale being double the horizontal scale for the sake of distinctness. Tracings of all should then be given to the foreman to guide him in his work. When this has been done, the next thing is to set out the walks, plantations, and beds by actual measurement from the plan, in order that you may obtain the same easiness of lines and curves, and the accurate distribution of the various parts.

Then the actual work begins, and the soil and turf should be stripped off and taken away from the spot which the house will cover, and at least from 25 to 30 feet all round, in order that space may be given to the builders and workmen, and room for depositing rubbish, from the foundations. The main drive to the house should then be at once commenced, the soil taken out to the depth of about 18 inches, the drain laid, and the drive filled up to within about 3 inches of the surface with flints, coarse gravel, rubble, or any angular material that will remain dry and porous; lastly, the whole must be well beaten to make the various materials set well.

The reasons for forming the main drive first are obvious—namely, to prevent workmen employed in building the house from making footpaths and roads over all parts of the ground, and to give a means of access to the house for carts. The boundary fence should then be the next consideration, as it affords privacy to the place and prevents people trampling over any portion of the ground. The walls of the kitchen garden must be built as soon as possible, in order to get the bricklayers out of the way before anything is done in the way of trenching or levelling. In the meantime any rough work can be done, such as draining, forming mounds, sheets of water, or rockeries, so as to gradually work the surface of the ground into the proper shape and outlines.

By this time the house will no doubt be nearly finished as far as the building is concerned, so that the edgings of the walks can be formed, planting begun, as it is much better to plant before the turf is laid down, in order that the grass may not be soiled or trampled; the ground may be levelled and the turf laid.

When the grass has settled and the workmen have left the house, the verges can be accurately cut, the gravel on the walks and drives laid down, and the whole completed. If, however, any workmen, such as plasterers, painters, or carpenters doing outside work to the house have not finished, it is better to defer the planting, levelling, and turfing immediately around the house, as the turf and shrubs may get trampled on and even destroyed. I have now given a rough and cursory sketch of the routine of work in laying out a garden, I will give a few suggestions on the practical treatment of walks, drains, and planting.

(To be continued.)

TREDEGAR PARK.

SITUATED between two of the busiest ports of South Wales, Cardiff, and Newport, and only two miles distant from the latter, bounded by a network of railways that are continually busy bearing their freights of coal and other minerals for sea transit, and the hosts of passengers that are always on the wing between South Wales and the outside world bent upon matters of commerce, &c. Here, within a somewhat extensive and well-furnished park, stands the above mansion, the beautiful home of generations of the Morgan family. The family, now represented by the Right Hon. Lord Tredegar, have been connected with the county history of both Brecon and Monmouth for upwards of 250 years, both counties being repeatedly represented in Parliament by them. The mansion was built early in the seventeenth century, and an idea of its importance will be gained from the fact that its architect was no other than the famous Inigo Jones, the style of which will be seen by the accompanying illustration. The present Lord Tredegar is known as one of the heroes of the "Charge of the Light Brigade," serving as Captain in the 17th Lancers, then the Hon. Geoffrey Morgan. He rode through Balaclava, Alma, and Inkerman, and escaped with his famous charger "Sir Briggs" to well-earned retirement at Tredegar. "Sir Briggs" has since had honourable burial in the grounds, with a monument bearing a suitable inscription to his memory marking the spot. May his noble rider long survive him. As patrons of agriculture and horticulture the family have been long and widely known. The annual fat stock show bearing his lordship's name is among the first of its kind; but our interest is chiefly with the latter pursuit, and therefore must chronicle our impressions from the horticulturist's standpoint. First of all our attention is directed to a group of trees in the flower garden that appear somewhat out of place. There are some very fine Larches, Cedar of Lebanon, Catalpa, Cork Tree, and Red Wood, with specimens of Silver Elms at a short distance off, about 60 feet high. These specimens are respectively among the earliest introductions of their kinds to this country, after hearing which we feel far from begrudging them their places. There are also in the vicinity some fine specimens of Tulip Tree, and Sweet Bays are perfectly at home, several specimens over 30 feet high. Enumerating trees reminds us of another somewhat rare specimen in a moist position adjoining the kitchen garden—namely, the Liquidamber, 35 feet high. Immediately fronting the mansion there are also some fine specimens of Variegated Hollies and Araucarias, as shown in fig. 34; and bordering an ornamental lake, which supplies water to the mansion, are magnificent deciduous trees in variety, bearing evidences of many storms in the long past, but well calculated to brave the fury of many more. A young pinetum in miniature near by contained some excellent Wellingtonias, running a very even race of

rivalry, and on a bank in close proximity was a hedge of Laurels, where our worthy guide (Mr. Rhoderick) pointed out the superiority of the variety *rotundifolia* over the old common Laurel, the colour and texture of the leaf being much better, and the wood hardier and more retentive of the lower foliage.

A glance at the massive iron gates in the illustration will convey a better idea of their style than will a written description. Suffice it to say that they are very old, and are all the best class of handwork. A large square or court in approaching the mansion is skirted with wide borders which are ribboned in the season in the old style with spring and summer bedding plants and bulbs in their respective seasons, and an inner square is also done in a similar manner, both being rendered most attractively gay. Walls surrounding the flower garden are in part clothed with Roses, Clematis, Jasmines, and a host of useful flowering climbers, and partly with Plums and other fruit trees, the wide borders in the former instance being furnished with a useful collection of herbaceous plants and bulbs, which, supplemented by other similar

succession, so that masses of colour and variety can always be relied upon to create an effective display at all seasons in the splendid apartments, which have always to be kept brilliantly gay. The ordinary pip-mounting would not do here, nothing less than branches of flowers would have any effect in some of the larger receptacles. That Mr. Rhoderick should be able to keep up such a supply with somewhat limited means, for the houses are not of modern build, speaks well for the system that he practises. Some of the principal flowers used are *Richardia æthiopica*, grown outdoors in summer in trenches, hundreds of them. *Chrysanthemums*—upwards of a thousand plants of the best varieties are grown, besides large quantities grown and flowered in sheltered positions. In this collection we saw the most perfect form of *Mrs. Alpheus Hardy*—a lovely flower.

Poinsettias, large quantities bearing bracts 15 inches across, with late struck plants ranging from 6 to 18 inches high, very useful for bordering, &c.; hybrid *Rhododendrons*, and *Azaleas mollis, indica*, and other varieties, are forced by the score, whilst of *Roman Hyacinths* no

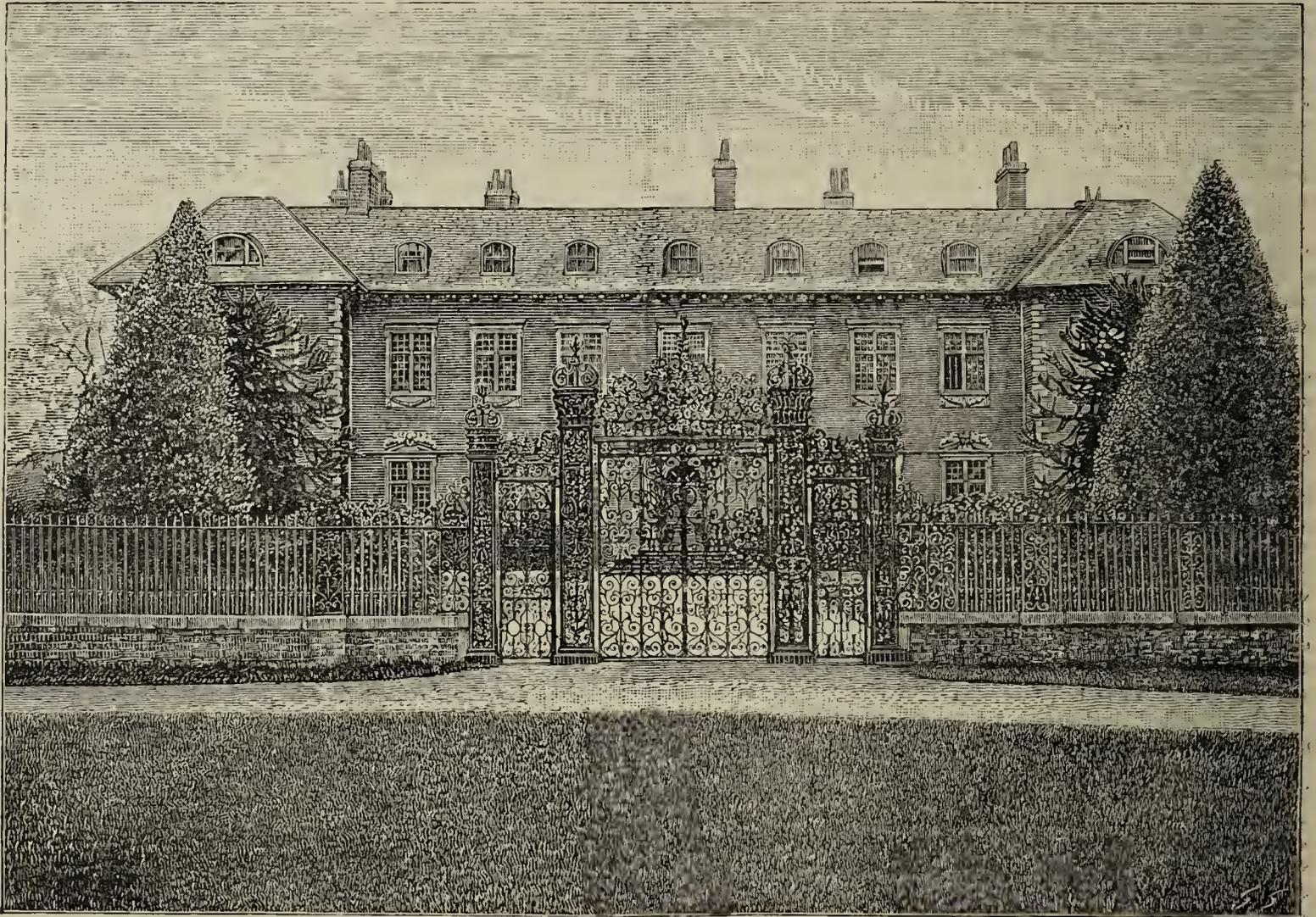


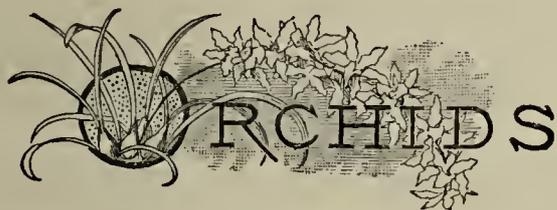
FIG. 34.—TREDEGAR HOUSE.

borders in various positions in the garden, afford a valuable supplementary supply of cut flowers to those artificially produced. High and dense Yew and Bay hedges afford shelter to many tender plants. In one enclosure of these *Azaleas* and *Camellias* luxuriate, and we remember a splendid bed of *Lilium auratum* here in all its known glory. On the high walls of the mansion and buildings on this side are splendid examples of *Magnolia grandiflora*. One of these measures 35 to 40 feet high, and about the same in breadth. A miniature flower garden near Mr. Rhoderick's house is also a pretty picture. Small beds in a box design, always gay with summer and winter occupants alternately facing a rustic summer house, overhung with *Clematis*, *Wistaria sinensis*, &c., in common with adjoining walls. The usual bedding, which is most extensively done, but not on the rigid lines common in modern gardening, must for the present be passed over with the bare remark that it takes the best part of several houses throughout the winter to store and nurse the many thousands of plants required for this purpose, the same houses being devoted afterwards to the culture of Melons, Cucumbers, and Tomatoes. In the glass department we find that Mr. Rhoderick works on a splendid system in catering for the huge demand for furnishing material in the way of plants and cut flowers. Immense supplies of everything suitable for cutting purposes are brought on in

less than 10,000 are annually forced, and about as many other *Hyacinths* and *Tulips*. Mr. Rhoderick speaks highly of *Scilla campanulata alba* for pot work, but it should not be forced too hard. *Bouvardias* and *Solanums* in early winter are found valuable, whilst double and semi-double *Geraniums* are indispensable. Double *Primulas* and *Cyclamens* are strongly in evidence, and the much-talked-of *Kalanchoe carnea*, has obtained a favourable verdict.

Of plants for house work, Mr. Rhoderick speaks well of the variegated *Indiarubber*, *Ficus elastica variegata*, and *Dracæna Lindenii*, as two valuable additions to ornamental plants for this purpose; the latter has had a bad name for losing its colour in the lower leaves, but this is perhaps on account of keeping too far from the light when growing, and in too strong heat. The *Kentias* and *Areca lutescens* in Palms are favourites, though many others are grown, with *Crotons* and *Dracænas* as reinforcements. About 1400 *Violets* in frames, several varieties vieing with each other for first place, the chief varieties being *Marie Louise*, *New York*, and *Comte de Brazza*. *Roses* should have been mentioned as one of the principal plants in the above list. The best *Teas* and *H.P.'s* are worked in succession, to which might be added large borders throughout the kitchen garden and elsewhere that furnish abundance of the coveted blooms. The usual fruit and vegetable forcing

is not neglected either, for the more poetic part of gardening. Indeed the demand in these, particularly the latter department, seems to be as great as for flowers, and is as well supplied, judging from the vast and choice stocks that are always to be seen in the kitchen garden. Grapes, Peaches, Figs—"the latter do well outdoors, and of which there are some fine specimens"—have their share of attention, and, in common with other parts of his charge, testify to the untiring energy and ability of the unostentatious gardener, Mr. Rhoderick, who is, by-the-by, a worthy pupil of Mr. David Thomson of Drumlanrig.—BRADWEN.



THE VALUE OF CALANTHES.

I was pleased to see, on page 200, Mr. Iggulden could speak so highly of the utility of the Calanthe flowers when cut; and I can corroborate his assertion that Calanthes stand pre-eminent in many positions. One of the most effective displays I have seen was that in which C. Veitchi and C. vestita were freely employed in a group of miscellaneous plants at a Chrysanthemum show. But as I had promised to write a few lines on the cultivation of the Calanthe as practised here (before I saw Mr. Iggulden's article), and as he speaks of a suspended shelf, I will begin with the supposition that the pots containing the pseudo-bulbs of C. Veitchi, C. vestita, C. lutea are now stored away high and dry on a suspended shelf, for in such a place they are always kept when at rest here, free from an accidental watering and in a temperature about 60°. Previous to potting I think it a good plan to start the pseudo-bulbs in the following way. After cleaning and trimming all the old roots off I set them in a box with about 1 inch of fine sifted leaves and sand, well mixed, spread evenly on the bottom of the box, arranging them according to size at the same time. The boxes are then placed back on the shelf in the stove for about two weeks, or until the young roots are 1 inch long; then they are finally potted in 32 and 48-size pots, which we find quite large enough. Three of the largest pseudo-bulbs of C. vestita and four to five of the smaller are placed into a 32-sized pot. The largest pseudo-bulbs of C. Veitchi we place into 48-size singly, that being a convenient size to drop in amongst Ferns and other foliage plants when in flower.

The compost used is one-third each of good Orchid peat broken up with the hand, all fine particles being shaken out; one-third dried cow manure, fresh horse droppings as prepared for Mushroom-rooms, small charcoal, coarse silver sand, and leaves through a quarter-inch sieve. All these are well mixed together and warmed. The pots are well drained, but not excessively so. Just the same as a 48 or 32-pot would be drained for a Chrysanthemum, using the roughest part of the compost in the bottoms of the pots. Press the soil moderately firm with the hand, fill up to about 1 inch from the top, arrange the pseudo-bulbs that the young growths will have plenty of room, covering the young root with the fine part of the soil. The pseudo-bulbs are in no case raised above the rim of the pots, as I have seen them potted many times. With a gentle watering they are returned to head-quarters, the suspended shelf in the stove being carefully watered until the roots run freely, when they receive copious supplies of liquid manure prepared from fresh horse droppings and soot, which seems to give the desired result—viz., a grand display of flower spikes.—J. C. H.

SEASONABLE TREATMENT OF ONCIDIUMS.

ALL Oncidiums that are growing with the Cattleyas may be top-dressed, except those that it is necessary to place into larger pots, pans, or baskets. These plants are less difficult to pot than Cattleyas, for their roots are not so easily destroyed. Many Oncidiums will flourish in the same basket for years provided they are top-dressed with moss and peat annually. When these plants are placed in baskets plenty of charcoal should be given them, and their roots will soon become attached to it; the compost used for them should be near the surface, so that it can be removed when decomposed. It is sometimes difficult to pick out the whole, but it can generally be washed out, and when this is done the baskets must be allowed to drain thoroughly before the new compost is applied. Those in pots or pans that need a larger size should have them most liberally drained, for these plants root most freely upon the surface. The majority do well in peat fibre and a little charcoal intermixed, with a good layer of moss on the surface. When repotting any plants decomposed soil should be removed and the

roots washed clean in tepid water. If the material used for potting is good, and too large shifts are not given, they will be in sweet condition in the space of two years, when they should require larger pots or pans. More water may now be given to the roots of those starting, while those repotted must be watered very carefully until they are growing and rooting freely. If these or any Orchids are overwatered after they have been repotted they are certain to suffer, but with care they will start freely and vigorously into growth. For the present make no attempt to grow the sphagnum on the surface of these plants; they can be surfaced after they have commenced growing freely, and then the moss can be encouraged.—B.

ROYAL HORTICULTURAL SOCIETY.

MARCH 25TH.

AS at the previous meeting in the Drill Hall, James Street, Westminster, the exhibits on Tuesday were both numerous and interesting in a more than ordinary degree. Nearly the whole of the available space was occupied, Hyacinths, Daffodils, spring flowers, Roses, Orchids, and Cinerarias forming the leading attractions in the floral department, the Fruit Committee's business being necessarily more restricted, though several important features were provided.

There was a large attendance of Fellows and visitors during the afternoon, when M. Henry de Vilmorin of Paris delivered an able lecture upon "Salading," briefly noted at the end of this report. The meeting altogether was highly satisfactory and creditable to the Society.

FRUIT COMMITTEE.—Present—Sir C. W. Strickland, Bart. (in the chair), with Mons. Henry de Vilmorin, Dr. Hogg, and Messrs. P. Crowley, R. D. Blackmore, Harrison Weir, J. Cheal, C. Ross, G. W. Cummins, J. Smith, J. Willard, W. Warren, H. J. Pearson, G. Wythes, J. Hudson, F. Q. Lane, G. Bunyard, A. W. Sutton, A. Watkins, and J. Wright.

Mr. Lockie sent fruits of Lockie's Perfection Cucumber, a short-necked good variety, for which a vote of thanks was recorded. Mr. J. Smith, Mentmore, was accorded a similar mark of approval for a brace of Cucumbers in excellent condition. Mr. F. Q. Lane sent samples of different forms of Watercress, showing slight variations in colour and form of leaf. They were from cultivated beds in Hertfordshire, and it was stated that the varieties did not thrive equally well in the same part of the stream. Mr. Willard remarked that the Brown Cress turned green when grown at Highgate, and Mr. Wright said Watercress was very delicate and tender grown from seed or cuttings in rich moist soil in frames in early spring. Mr. W. C. Leach, Albury Park Gardens, sent several heads of Veitch's Standard Bearer Celery, as a good late variety continuing in use till May. The Celery was clear, firm, crisp, and of good quality. A vote of thanks was accorded.

Mr. J. Simms, gardener to W. Eastwood, Esq., Kingswood, Englefield Green, sent very fine and well coloured fruits of La Grosse Sucrée Strawberry, for which a cultural commendation was unanimously granted. Mr. W. Roupell sent a small collection of Apples grown within five miles of Charing Cross. Annie Elizabeth was particularly firm and fine; Striped Beefing also very fine; the Melon Apple and Bismarck having lost their freshness. The two Apples first mentioned must be regarded as among the best of late keeping varieties, and such samples as those in question would sell readily at good prices at this period of the year, excelling as they did the best of the American produce now in the market. Mr. W. Lewis, South Leasons, Malvern, sent a dish of a seedling Apple, medium sized, Pearmain shaped, recommended by the exhibitor for late eating and cooking. It was not considered quite good enough for dessert nor large enough for culinary purposes, hence no award was made. Mr. C. Ross, Welford, sent a seedling Apple of unknown parentage named Armored, small, flattish fruit, firm and sweet. An award of merit was recommended, further experience being required to justify the award of a first class certificate. Mr. C. Lye sent a seedling Apple which was passed, as also was Ashford Seedling, that was before the Committee on a former occasion.

A collection of salads was sent by Mr. James Webber, including excellent Lettuces, Endive, Radishes, Chicory, Witloof, Cucumbers, Beet and different varieties of Cress, for which a vote of thanks was unanimously granted.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. R. Dean, A. Truffaut, G. Paul, H. Herbst, B. Wynne, T. Baines, C. T. Druery, C. Jefferies, J. Walker, F. Ross, Harry Turner, W. C. Leach, R. B. Lowe, J. Fraser, H. Cannell, W. Holmes, Lewis Castle, and the Rev. H. H. Dombrain.

The most extensive and handsome group of plants came from Messrs. B. S. Williams & Son, Upper Holloway, for which the Committee unanimously recommended a silver-gilt medal. The chief feature in this was formed by about a hundred even and admirable Hyacinths of the best varieties, and bearing massive spikes of varied colours. Clivias, another of the Holloway specialties, were equally fine, their bold rich green leaves and great trusses of flowers having a striking effect, such varieties as Baron Schröder, Martha Reimers, cruenta, and Meteor being conspicuous. Guelder Roses and dwarf Lilacs in pots were very notable for their compact habit and large numbers of flower trusses. Lilies of the Valley were well represented, as also was the fragrant Boronia megastigma. The whole of one side of a table extending the length of the Hall was devoted to this group, and even then room could not be found for all the plants.

Messrs. Paul & Son, Cbeshunt, contributed a bright and pleasing group of Roses in pots (silver medal), comprising plants of the graceful *Polyantha* varieties, Mignonette and the new *Clotilde Soupert*, with the large single variety *grandiflora*. Of other varieties the new H.P. Lady Alice, The Puritan, Jean Ducher, Souvenir de S. A. Prince and Madame Hoste were admirably represented.

Mr. James of Farnham Royal had his usual handsome *Cinerarias*, the flowers of great size, and the colours remarkably rich (silver medal). Messrs. Barr & Son, King Street, Covent Garden, showed a large collection of Daffodils, including representatives of the chief varieties now in favour; the brilliant *Anemone fulgens* and the blue *Chinodoxas* also furnished much colour (silver medal). From Messrs. Cutbush & Son, Highgate, came a group of *Epacris* in many varieties (bronze medal); and Messrs. H. Cannell & Sons, Swanley, had some excellent double *Cinerarias* and single *Zonal Pelargoniums* (bronze medal). Mr. C. Turner, Slough, showed some boxes of *Carnation* blooms (vote of thanks). Messrs. J. Veitch & Sons, Chelsea, had several new *Hyacinths*; and Mr. R. Dean contributed a collection of *Primroses* (vote of thanks).

The amateurs' exhibits were not numerous. Mr. J. H. Froud, gardener to J. W. Ford, Esq., Chase Park, Enfield, sent specimens of *Acacia retinodes* with long pale yellow spikes of sweet scented flowers and a collection of *Camellia* flowers (vote of thanks). Mr. G. W. Cummins, gardener to A. H. Smee, Esq., Carshalton, showed strong plants of *Veltheimia viridifolia*, having long spikes of pinkish flowers and well developed shining green leaves, and Mr. J. Gregory, Haselbeck Hall Gardens, Northampton, sent flowering stems of the yellow *Celsia cretica* (vote of thanks).

A basket of Alpine and other plants from the Royal Gardens, Kew, contained several *Anemones*, one of the most noteworthy being *A. apennina alba* with pure white flowers. Good varieties of *Saxifraga oppositifolia* were also shown, together with some of the earlier flowering *Prinulas*.

ORCHID COMMITTEE.—Present: Sir Trevor Lawrence, Bart., M.P., in the chair, and Messrs. S. Courtauld, T. B. Haywood, H. M. Pollett, F. Dominy, H. Ballantine, C. Pilcher, E. Hill, H. Williams, Lewis Castle, F. Moore, F. G. Tautz, A. H. Smee, J. O'Brien, and Dr. M. T. Masters.

Orchids were not quite so strongly represented as at the last two meetings, but several interesting plants were shown, and the Committee had a full share of work. Messrs. Sander & Co., St. Albans, had a small group of Orchids, including *Oncidium bifolium majus*, a vigorous plant, bearing six panicles of flowers, and growing in a basket. *Oncidium tetrapetalum* is one of the small flowered species, with a roundish white lip and brown spotted sepals and petals. *Angræcum Germinyanum* has a white heart-shaped lip, prolonged at the apex into a linear tail. The sepals and petals are long, narrow, recurving, and white. It is of slender-graceful growth. *Dendrobium nobile nobilium* was well represented, the flowers deeply coloured, and *Odontoglossum vexillarium*, St. Albans type, distinguished by the deep colour of the flowers.

N. C. Cookson, Esq., Wylam-on-Tyne, again showed a plant of the hybrid *Phaius Cooksoni*, the lip being of a much deeper and richer colour than when it was seen at the last meeting. R. Young, Esq., Liverpool, showed a small flowered unattractive *Cypripedium* named *C. hybridum Poyntzianum*. Messrs. Hugh Low & Co., Clapton, had a fine *Phalænopsis* which they termed *Schilleriano-gloriosa*, on the assumption that it was intermediate between the forms expressed in the name. F. G. Tautz, Esq., Studley House, Hammersmith (gardener, Mr. Cowley), had plants of *Cattleya Trianae Tautziana*, a fine well-coloured variety (award of merit), the distinct *Dendrobium chrysodiscus*, *D. Freemani*, *Lycaste cruenta*, and the charming little *Odontoglossum blandum*.

A remarkable Orchid was sent from the Royal Gardens, Kew—namely, *Cœlogyne pandurata*, which has green sepals and petals, the lip being also green but heavily marked in the centre with black, an uncommon combination of tints, both green and black, but especially the latter being rare in flowers. A. H. Smee, Esq., sent two plants of *Cyrtopodium Saintlegerianum*, so strong and evidently well grown that a cultural commendation was accorded for them. One of the plants was named *superbum*, a distinct and superior variety to the other, the flowers large and the colouring much richer. Baron Schröder, The Dell, Egham, exhibited a plant of *Odontoglossum Lceanum*, with yellow flowers thickly dotted with brown, one of the best of its type. *Cattleya Trianae Schroederæ alba* had pure white sepals and petals, the lip yellow in the centre. H. F. Nalder, Esq., Mornington Lodge, West Kensington (gardener, Mr. T. W. Rogers), showed a highly coloured variety of *Dendrobium nobile*, and Messrs. Pitcher & Manda, Swanley, sent a small group of *Cypripediums* and *Cattleyas*. E. Ellis, Esq., Manor House, Warrington (gardener, Mr. T. A. Glover), sent a variety of *Odontoglossum Andersonianum* named *Ellisi*, *Lycaste Schilleriana* with greenish flowers, and *Dendrobium nobile*.

Angræcum citratum was shown by W. F. Darnall, Esq., Devonshire House, Stamford Hill (gardener, Mr. G. Elliott); a healthy plant in a small basket, and bearing four long racemes of its creamy flowers (cultural commendation). W. C. Walter, Esq., Piercy Lodge, Winchmore Hill (gardener, Mr. G. Cragg), had a plant of *Oncidium sarcodes* having two panicles each 6 or 7 feet long (cultural commendation).

PLANTS CERTIFICATED.

Dendrobium Wardianum, *Baron Schroder's variety* (Baron Schröder).—An exceedingly attractive and distinct variety, having very large flowers, the sepals and petals tipped with deep rich crimson, the sepals flushed with a light shade of the same colour, the petals ivory or creamy

white. The lip is broad, with maroon blotches at the base, then a rich yellow zone, white and tipped crimson. A first-class certificate was unanimously granted for this superb variety.

Lælio-Cattleya Hippolyta (J. Veitch & Sons).—A remarkable hybrid between *Cattleya Mossiæ* and *Lælia cinnabarina*, and presenting a combination of the characters in the two parents. The sepals are narrow and spreading, the petals broader in the centre and more lanceolate in shape; the lip was narrow, and not fully open. The colour is a peculiar shade of orange buff, of uniform depth throughout except at the apex of the lip, where it is faintly flushed with crimson, and at the base of the sepals and petals a darker shade of the same colour is noticed (first-class certificate).

Philadelphus inodorus (Mr. W. C. Leach, Albury Park Gardens).—A Mock Orange or Syringa, wanting the fragrance that distinguishes some of the species. The flowers are large, pure white, freely produced, and last well when cut. Mr. Leach finds it a useful shrub for forcing, and when potted early it can be had in flower at Christmas (award of merit).

Deutzia candidissima flore pleno (Mr. W. C. Leach).—Another free and useful shrub, bearing its neat double starry pure white flowers in long racemes. The leaves are elliptical in form and neatly serrated at the edge.

Iris sindjarensis (Messrs. Barr & Son).—A dwarf species with short, broad, somewhat glaucous recurving leaves, the flowers pale lavender blue, the falls lighter in the centre (award of merit).

Trillium discolor atratum (J. Veitch & Sons).—A variety with extremely dark claret purple flowers and spotted leaves.

Lily of the Valley, *Fortin's variety* (Mr. E. Morse, Epsom).—Several varieties of *Lily of the Valley* are now in cultivation, and that above named is distinguished by the size of the flowers and the general strong habit of the foliage and growth.

THE LECTURE.

A general meeting was held at 3 P.M., in the Drill Hall, Dr. Robert Hogg in the chair. After the election of a number of Fellows the Chairman introduced M. Henry de Vilmorin of Paris, who had been announced to deliver a lecture on "Salad Plants," and he was heartily received by the exceptionally large audience. The lecturer commenced his remarks by referring to the necessity of vegetable food in addition to meat for constituting a diet calculated to promote health. Most salad plants, he observed, in common with many other plants, contain salts of potash, which are largely removed from ordinary vegetables in the process of boiling, but are retained in salads, as they are used in an uncooked state. This important point he impressed upon his audience as one of the strongest recommendations of salads. The various parts of plants specially employed for salad purposes were next briefly reviewed—the roots, as in Beet; bulbs, as in Onions and their relatives; stems and leaves, as in Chicory; leaves, as in Lettuces, Endive, and Dandelion; flowers, as in *Tropæolum* and Borage; and fruits, as in the Tomato and Cucumber.

M. de Vilmorin then divided the remaining portion of his subject under two heads—first, a list of vegetables suitable for salads, and second, the methods and importance of blanching as applied to plants employed in this manner. He remarked that the Continental idea of salads was slightly different from that prevailing in England, as they were often regarded as constituting separate dishes, and not merely as accompaniments to richer viands, though some were almost invariably employed in the latter way, others in the former. The names and qualities of the principal kinds used in Paris, and the times during which they were obtainable in the markets, were next briefly given, and the lecturer proceeded to a consideration of blanching. He said it was generally understood that the flavours and green colour of plants were chiefly developed under the influence of light and heat. The exclusion of light, or blanching, consequently renders them not only white but milder in flavour where this is naturally strong, as in Celery, Dandelions, and other plants. Many native plants might no doubt be improved or rendered suitable for food in some form by this process; and M. Vilmorin stated that a list had been prepared of over 200 plants, native to France, which it had been thought could be utilised in this way. He then proceeded to deal at some length with the culture and blanching of Witloof, Barbe du Capucine, Dandelion, and other plants employed in France, and concluded an able lecture by thanking his auditors for their attention.

Dr. R. Hogg proposed a vote of thanks to M. de Vilmorin, and remarked that they were greatly indebted to him for his interesting discourse. Dr. M. T. Masters seconded the proposition, it was heartily supported, and carried by acclamation. M. de Vilmorin replied in a few grateful sentences, and the meeting terminated.

GARDENERS IN WANT OF SITUATIONS AND THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

I HAVE been much interested in the discussions of late in the *Journal of Horticulture* relative to gardeners obtaining situations when unfortunately they happen to be "out." The matter was carefully discussed at the last Committee meeting of the above Society, and it was resolved to invite the opinions of its members on the subject. As a benefit and provident society registered under the Friendly Society Acts, we cannot divert any of our funds to assist gardeners in other

than sickness and old age, and that to members only. I believe, however, that means will be devised eventually whereby it may be so arranged that by a separate subscription and distinct management, yet identified with the Society, members may have their names entered in a register when in need of a situation. Thus, when it becomes better known that the Society recommends gardeners to ladies and gentlemen in want of them, we hope to benefit our members. In all future printing of balance-sheets and circulars, we propose to insert the information that we recommend our members who may be out of place to the favourable notice of proprietors. I might state that we already help each other all we can in this respect. Two cases in point have occurred since our last meeting, and one just previously, in which one member obtained a situation for another. Other cases might be quoted, but this is sufficient to show that, as a body of fellow gardeners banded together in a society, "benefit and provident," we do assist each other, and endeavour to carry out our motto, "Union is strength." I hope after our next meeting to be able to give more definite information on the subject.—TREASURER.



ROSE SHOW FIXTURES 1890.

- June 24th.—Drill Hall, Westminster (N.R.S.).
- „ 27th.—Royal Aquarium.
- „ 28th.—Eltham, Reigate.
- July 1st.—Canterbury, Hereford, Sutton.
- „ 2nd.—Croydon, Dursley, Hitchin.
- „ 3rd.—Bath, Farningham, Norwich.
- „ 5th.—Crystal Palace (N.R.S.).
- „ 8th.—Gloucester, Ipswich, Winchester.
- „ 9th.—Diss, Ealing, Tunbridge Wells.
- „ 10th.—Birkenhead, Worksop.
- „ 17th.—Birmingham (N.R.S.), Helensburgh.
- „ 22nd.—Tibshelf.

The only Rose Show on the above list which extends over more than one day is that at Winchester, which will be held on the 8th and 9th of July.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

MARÉCHAL NIEL ROSE IN VINERY.

We have here a Maréchal Niel in the early vinery, from which we have cut this year fourteen dozen blooms. The house is a lean-to, and the back wall is 13 feet high. The Rose is planted out at one end, going up with a couple of clear stems to a height of about 9 feet. The growths are then tied to wires run along the wall, the lowest of which is about 4 feet from the top of the house, so that even when the Vines are in full foliage they have a fair amount of light. Green fly appears at times, but a good washing by means of a garden engine soon rids the plants of the pest.—J. M. N. ASTON.

MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY

(Continued from page 246.)

Madame Falcot (Guillot, 1858).—Of good growth and foliage, not liable to mildew, or very much hurt by rain. A buttonhole Rose, rather small, and loose, thin, and wanting in centre when expanded. It is somewhat of the same type as Safrano, of deeper and brighter colour, and altogether better in bloom, but less hardy, of less vigorous growth, and not quite so free flowering. Rather tender for a buttonhole Rose, which we generally expect, I do not know why, to be more vigorous and hardy than show varieties; but a lovely bud, the exterior of the outer petals having often the most charming combinations of red and yellow, and the whole flower being sometimes of a beautiful deep self-yellow. It is a good autumnal, but does not seem to answer thoroughly well as a dwarf.

Madame Hippolyte Jamain (Guillot, 1869).—Of good growth, strong enough for a low wall, which suits it well; not much liable to mildew, and bearing rain better than some. The flower stalks are pliable, and the blooms, which come late and generally well, though occasionally divided, are completely pendent. This is one of those Roses whose beauty is quite concealed on the plant, and few who have only seen it as growing would believe what a beautiful flower it is when properly shown at the right stage. At this period the outer petals fall well down when the bloom is held up, and display a charmingly tinted and shaped centre. Afterwards, in very hot weather or on a wall, it expands to quite a flat shape with a much yellower colour, and many would not recognise it as the same Rose; but it may be thoroughly depended on to last when cut in the right condition, for it requires fine, hot weather to open at all. It does well as a dwarf, but best on a wall facing east or west, and will then be found not too early for exhibitions; is only fair as a free bloomer, requires too much heat to be a good autumnal; and is not of a large size, but the spread of the fine lower petals makes this and Roses of similar shape appear to the utmost

advantage, and larger than they really are. Note that there is a light coloured H.P. of the same name as this Rose.

Madame Hoste (Guillot, 1887).—Too new an acquaintance to speak of without any certainty, but it seems promising, with fair stiff growth and good foliage; very good shape, but not very stout in petals; free blooming and of good size. It is not a useful colour, for we want something more deep and decided among yellow show Tea Roses.

Madame Lambard (Lacharme, 1877).—Of good healthy growth with fair foliage, rather liable to mildew, but being a thin Rose is a good deal less subject to injury from rain than other Teas. The blooms come generally well, but the strongest ones are sometimes divided; they are thin in petal, not very large, and wanting in fulness; must be grown very strong to be shown well, and then are not lasting. A cool season Rose, very free blooming, but to the ordinary grower of little account in the summer when other Teas which can stand the hot sun are to be had. In the late autumn *Madame Lambard* is a friend indeed. I had nearly as many blooms of it in the open in the middle of last November as I could gather from all my other Roses put together. It does well as a dwarf, and is remarkable for its extreme variation in colour; you may have some blooms of a bright light red, others of salmon, and others of rosy buff or lighter, all on a plant at the same time.

Madame Margottin (Guillot, 1866).—Of fine sturdy growth, with good foliage. Does well as a dwarf, and is not liable to mildew, but is very easily spoiled by rain, as this is a Rose of the opposite extreme to the one last mentioned. It is very full, with thick petals, refusing to open properly except in hot dry weather, and consequently, though free of bloom, is generally of no use as an autumnal. The strongest blooms some malformed sometimes, and indeed a perfect one is not very easy to get, but a great acquisition when it does come, as it has good size, fine globular shape, bright colour, and first-class lasting qualities.

Madame Welehe (Ducher, 1878).—Moderate in growth and in quality throughout. Not a free bloomer, rather deficient in size, and not of the best shape; but the colour is distinct and good, the centre being sometimes very nearly orange.

Madame Willermoz (Lacharme, 1845).—Of very sturdy stout growth, with splendid foliage, not liable to mildew, but very easily injured by rain. This is an old Rose, and still of considerable repute, though no favourite of mine. I find it full of abundant promise in its exuberant growth and foliage, but generally sadly lacking in the production of handsomely shaped useful blooms when the critical time comes. The petals are very fine, but the form is not good, the outside petals keeping up as tight to the bloom as possible, and a well defined point in the centre being often absent. This is the worst shape for exhibition, as it makes the bloom appear smaller than it really is, and a strong temptation arises to "dress," or rather "undress," *Madame Willermoz* by bending down the outside petals. The effect is very great, for not only does it make the bloom rather more of the shape which rosarians approve of, and the size appear considerably larger, but also the inside of the outer petals is naturally of a much purer and cleaner white than the outside; and thus, by this simple process, the Rose appears larger, better shape, and purer in colour. It is, however, distinctly "altering the character" of the Rose, and the N.R.S. appears to be right in setting its face against the presentation of any Rose in a shape which it never naturally assumes. It does well as a dwarf, the stiff upright character of the wood being well suited to this modern mode of culture. The blooms sometimes come divided, and it cannot be called a free bloomer or a good autumnal.

Marie Van Houtte (Ducher, 1871).—The strongest and best in growth of any of the pure Teas, with fine evergreen foliage, very little liable to mildew, and not much injured by rain. The blooms come generally well, but occasionally divided. A cooler time after hot weather, which is most favourable for all Roses, will show *Marie Van Houtte* at its best. In manners and customs and all-round good qualities it must take first prize among the Teas; at all times a beautiful bloom, in perfection most lovely, excellent in petal, fulness, shape, colour, lasting qualities and size, very free in bloom, and a good autumnal. It does perfectly well as a dwarf, is not particular as to soil, and is undoubtedly the one Tea Rose no one should be without.

Niphotos (Bougère 1844) is a good instance of what is called "free" growth—i.e., neither long nor stout, but branching and generally growing somewhere. The foliage is good and not much liable to mildew, but the blooms will not stand rain. A Rose of great reputation for its free flowering qualities and the purity of its white colour. It is likely, I suppose, that Mons. Bougère, the raiser, is not now alive. I do not know how many thousand feet run of glass houses are maintained for the purpose of growing the Rose which he appropriately named *Niphotos* (Snowy), but I apprehend the figures would very much have astonished him could he have known them when he issued it, and he would perhaps have wished to attach his own name to it, instead of to the much less valuable production of twelve years before. White flowers are always in especial demand, not only because they are lovely in themselves, do not lose their colour and go well with everything, but also because on the three great occasions of birth, marriage and death they are generally considered to be of the most, if not of the only, appropriate colour. It so happens that *Niphotos*, the purest of all white Roses, has a long bud especially suitable for bouquets and wreaths, is free flowering and bears forcing well; it is no wonder, therefore, that it is cultivated for market purposes to an astonishing extent. But it is also capable of being exhibited as a Rose of great merit, with very fine petals and of the largest size. I have never seen better specimens than

those exhibited by some of the leading amateurs at the last National Rose Society's show at the Crystal Palace. The blooms come well, though occasionally divided, but they must be cut young for show (when there is often a greenish lemon tinge in the strong buds which is very becoming), as the shape is not lasting, and when the outside petals do come down they fall completely, giving the idea of a total collapse. It is free blooming throughout the season, but the autumnal buds will not come large, and require fine weather. This well known Rose does much best as a standard. I can get no show blooms from dwarfs, and the wood being neither stiff nor upright the petals get much injured by wind and rain unless the flowers are held well up above the ground.

A climbing sport of Niphetos has been issued this year, which gives a promise of being exceedingly valuable for the production of cut buds of this ever useful sort.—W. R. RAILLEM.

(To be continued.)

THE BATH FLORAL FÊTE.

THE spring Show provided by the Committee of the above took place in the Assembly Rooms on the 19th inst., and proved to be remarkably good all round, and it was regarded as one of the best Exhibitions ever held in Bath. Spring flowering bulbs, such as Hyacinths, Tulips, Narcissi, Crocus, &c., were a good feature. The best eighteen Hyacinths came from Messrs. R. T. Veitch & Son of Exeter, a well-grown and bloomed collection. Mr. G. Garraway, Bailbrook, was a good second. The best twelve in pairs of six varieties came from Mr. Garraway; Mr. Davis, gardener to Dr. S. P. Budd of Bath, was second. In the class for twelve distinct varieties shown by amateurs, Dr. Budd was first, and Mr. Marsh, gardener to J. M. Dunlop, Esq., Bristol, second. Dr. Budd was also first with a very good half dozen; Mr. G. White, gardener to J. Watts, Esq., Bristol, was second. The same exhibitors were successful with Tulips.

Daffodils were a good feature, there being a class for twelve pots. Mr. E. Kerslake, gardener to the Rev. E. Handley, Bath, won first prize with well-flowered examples of such sorts as Emperor, Empress, Countess of Annesley, Horsfieldi, Sir Watkin, Golden Spur, &c. Dr. Budd was second with good flowers also. The Rev. E. Handley offered special prizes for a group of Daffodils shown in pots or boxes tastefully arranged in pots, and took the first prize. Messrs. R. T. Veitch & Sons were second with a more representative collection, but not so well arranged. Some fine pots of Lily of the Valley were shown by Dr. Budd. Amaryllises were well grown and flowered, but they consisted of old-fashioned types with pointed petals. The best three came from Mr. A. Hawkins, gardener to Mrs. Jolley, Bath.

Oreids made an excellent feature, and, as usual, the Rev. E. Handley was first with fine examples of *Dendrobium nobile*, *D. nobile pendulum*, *Cymbidium Lowianum*, *Odontoglossum triumphans*, *O. Edwardi*, and *Cattleya Trianae* Leana, he being the only exhibitor in this class. The best three came from Mr. R. B. Cator of Bath, who had capital specimens of *Cypripedium vilosum*, *Dendrobium Wardianum*, and *Cattleya Trianae*. Mr. A. Taylor was second with *Phalenopsis Schilleriana*, *Dendrobium crepidatum*, and *Dendrochilum glumaceum* insigne. The best specimen Orchid was *Cattleya Trianae* from the Rev. E. Handley; Mr. Howell, gardener to J. T. Holmes, Esq., Bath, being second with *Cœlogyne cristata*. A remarkably interesting collection of plants, Orchids predominating, was set up by Mr. J. Cypher, nurseryman, Cheltenham.

Groups of plants arranged for effect were placed on tables, and they had a charming appearance. In the open class Messrs. Geo. Cooling and Sons were first, Ferns, Orchids, Acers and other foliage and flowering plants being tastefully displayed. In the amateurs' class Mr. R. B. Cator was first with a charming group also, Mr. J. T. Tate, gardener to W. Pumphrey, Esq., Bath, being second. Cut flowers comprised boxes of twelve Roses, Dr. Budd being first with an excellent dozen, and Mr. R. B. Cator second. In the classes for a hand bouquet, buttonhole bouquets, ladies' sprays, and a vase or epergne, Mr. C. Winstone won all the first prizes in a most worthy manner.

Fruit was confined to Apples and Pears. Mr. S. King had a very fine dish of Cornish Gilliflower, and Mr. R. H. Taylor a capital dish of well preserved Beurré Rance Pears. Vegetables were shown well for the season of the year. The best collection of six varieties came from Mr. W. Evry, Bath.

First-class certificates of merit were awarded to Mr. Cypher for *Odontoglossum haphicanthum superbum*, *Dendrobium nobile* Cypherianum, a very fine pale form, and to Phaius tuberculosus.

BULB SHOW AT HAARLEM.

FEW British horticulturists need to be told that Haarlem, in Holland, is the centre of the great trade in what are known as Dutch bulbs. In and around that town are cultivated the millions of Hyacinths, Tulips, Crocuses, and other bulbs which are distributed by seedsmen and nurserymen in this country in autumn. It might naturally be supposed that in the home of the bulb interest in its culture would be of so great a nature as to culminate at times in a grand display of bulbous flowers. That is so, but either from excess of native modesty or of business cares the growers only indulge themselves in a large show once in every five years. These Exhibitions are organised by the Dutch

Bulb Growers' Union, and the fourth of them was held at Haarlem on March 21st, 22nd, 23rd, 24th, and 25th of the present year. Perhaps it will not be without interest to endeavour to give bulb cultivators in this country some idea of what their brethren in Holland, who are experts in bulb culture, are capable of effecting when they turn once in a while from the commercial to the decorative aspect of the bulb industry, and endeavour to excel each other in the quality of the flowers for exhibition, as they do in the ordinary course in the quality of bulbs for sale.

A general comparison between a Dutch and an English bulb show could hardly be made, nor would it be strictly fair to attempt it when it is considered how different the conditions are. In the former case bulb specialists select the best roots from the enormous stocks at their command, and devote to them all the knowledge and care that the experience of generations has supplied them with. In the latter ordinary bulbs, limited in number, without special treatment, have to be relied upon. Nevertheless, the result of a comparison would not be discouraging to British growers. Visitors to the Show of the present year would see a magnificent Exhibition in every way, one worthy even of so long a journey, but not overwhelmingly superior in some respects.

It is doubtful if better Hyacinths were ever exhibited than those shown at Haarlem this year. It is in these flowers that the interest of the Dutch growers, and of the general public also, largely centres. This is hardly the case in England. In Holland, Hyacinths; in England, Daffodils—that is the position of the two countries as regards spring bulbous flowers; small wonder, therefore, that both exhibitors and visitors should view the Exhibition, mainly composed as it was of the former flowers in the very best condition, with pride and satisfaction. Without doubt they were a magnificent display, several of the most famous growers in Holland showing in better form than at any previous exhibition. Tulips were bright and beautiful, but not perhaps of such exceptional quality as the Hyacinths. They were hardly dwarf enough to be perfect, and the flowers were not above the average size. Narcissi, as has been before hinted, do not command the same attention in Holland as in England. There were none of the grand collections seen at the London spring shows, and here was a great point of difference; still there was some material on which the Daffodil lover could feast.

The arrangements of the Dutch shows differ materially from those in vogue here. All the exhibits have to be sent in two days before the Show opens. On the intervening day the Jury make their awards, and then arrange the plants to give the best general effect, not grouping them in the order of the schedule. This deliberation serves its purpose, and is possible in a quinquennial show, but we have not time for it here with our numerous annual displays. The Committee, with Mr. J. H. Krelage, President of the Union, at its head, worked most energetically in the arrangement of the Show, and great credit is due to them for the successful issue to which it was carried. The representative of the *Journal of Horticulture* was enabled to pursue his duties in connection with the Exhibition under the most favourable and convenient conditions, thanks, in a great measure, to the courteous assistance of Mr. G. H. van Waveren, an active member of the Committee.

And now a few remarks as to the special features of the Show.

HYACINTHS.

As before stated, the display of these was very large and fine. In the first class, four groups of 100 distinct varieties, all fine spikes, produced, as would be imagined, a very beautiful effect. Two of the most famous Hyacinth growers in Holland, the Brothers Byvoet of Overveen, near Haarlem, and Messrs. J. H. Kersten of Haarlem, between whom the struggle for supremacy is always close and keen, were in competition, and other noted cultivators had also entered. Between the first two, as on the occasion of the last Show five years ago, the issue lay, but history failed to repeat itself, Messrs. Byvoet turning the tables on their former conquerors. More interesting to British bulb growers, perhaps, than the names of the exhibitors, which are in most cases unfamiliar to them, though not to tradesmen, will be the names of some of the varieties which represented them, and some idea of their quality. Some of the best varieties are comparatively unknown to cultivators in England; on the other hand, many of the varieties best known to us were also used extensively. In the class under notice, for instance, the splendid gold medal group of Byvoet Brothers included such familiar Hyacinths as *Gigantea*, *La Tour d'Auvergne*, *Couronne de Celle*, *Fabiola*, *So faterre*, *Pieneman*, *Marie*, *Von Schiller*, *King of the Blues*, *Noble par Mérite*, *Czar Peter*, *Madame Hodgson*, *Gertrude*, *Lady Derby*, *Snowball*, and *La Grandesse*. These are known to almost every British bulb grower, but somewhat less familiar are *Queen of the Blues*, a magnificent pale blue; *Roi des Belges*, rich sparkling crimson; *Veronica*, bright red; *Cardinal Wiseman*, pink, very large bells; *Thackeray*, deep bronzy purple, small spike but very distinct in colour; *Leviathan*, white with faint rosy tinge, very close truss, a beautiful variety; *Princess Amalia*, bluish, very large bells; *Menotti*, rich red; and *Moreno*, pale rose. These are all charming varieties, worth adding to any collection. Messrs. Kersten & Co., who raise a very large number of seedlings, had numerous unfamiliar varieties, amongst them *Dr. Windthorst*, white, large, substantial bell, good spike; *Miss le Jeune*, mauve; *Tolstoi*, bluish, double; *La Nuit*, black; *Blush Perfection*, beautiful semi-double; *Snowflake*, pure white; *Duke of Albany*, very fine double red; *Jaques*, bluish, enormous truss, but somewhat loose; *The First*, double, soft rose; *Grand Coneourant*, double, bluish; and some good unnamed varieties. Mr. T. van der Horst of Noordwijk had a fine collection, including *L'Ornement Rose*, bluish, with waxy substantial petals; *The Sultan*, shining purple; *George Peabody*, somewhat small spike, but bells of enormous size and substance,

"Cambridge" blue; Victor Emmanuel, bright rose; Montagne Bernard, crimson; and Anna, ivory white. As regards quality, these would bear close scrutiny. In nearly every case the plants were dwarf, the spikes rising well from the foliage and furnished with large substantial bells.

In the class for forty distinct varieties Mr. van der Horst was first with a magnificent group, including a truss of the blush coloured variety Jacques, 10 inches long by $4\frac{1}{2}$ inches in diameter; one of Pieneman, but a shade smaller, a splendid example of the popular blue Czar Peter, and also a very fine truss of La Grandesse, such as is rarely seen in England. Messrs. Byvoet were a good second and Messrs. Kersten and Co. third. Another important class for Hyacinths, and in which the Dutch growers took a great deal of interest, was that for seventy-five spikes in twenty-five varieties, each to be confined to one stem. This produced some splendid examples of culture, and collectively they were a rich display. Messrs. Kersten & Co. were placed first, Messrs. Byvoet Brothers second, and Messrs. M. van Waveren & Son third. There were not many points between the two first named. Messrs. Kersten had grand examples of the fine dark variety King of the Blues, the spikes densely clothed; of Financier, a splendid light blue; of L'Innocence, a beautiful pure white; of the pink Fabiola; of King of the Reds, bright red; and of Charles Dickens, delicate pink. Messrs. Byvoet had three splendid trusses of Von Schiller, one of the best reds in cultivation; of Baron von Tuyll, dark blue; of Cardinal Wiseman, pink; of King of the Blues; of L'Incomparable, deep crimson, and of Lord Macaulay, bright red, after the style of Von Schiller. Messrs. van Waveren's flowers were smaller but in very good condition.

It will suffice to deal briefly with the smaller classes for Hyacinths, as it would be tedious to give details of them all. Mr. van der Horst had a very good collection of twenty single varieties, and was placed first, winning also with twelve doubles. Messrs. Byvoet won with twenty-five doubles, a very fine collection. Double Hyacinths are not often shown so well as in this case. Noble par Mérite, pink, was one of the best; and Koh-i-noor, bright red, semi-double, was also good. The best blues were Louis Phillipe, Blocksberg, Charles Dickens, and Van Speyk. Amongst the whites Duchesse de Bedford, Miss Nightingale, very beautiful, pure white, and Anna Bianca were amongst the best. In the best examples the spikes were comparatively compact, but in this respect they suffer, of course, by contrast with the singles. Mr. G. Blokhuis had a splendid group of fifty singles and doubles mixed, though not including any very sensational spikes. They were a remarkably even and well grown group of plants, very dwarf. The redoubtable Byvoet Brothers had here to take second place. In the other classes for Hyacinths in pots there was little to call for comment except the splendid collections of twenty-four doubles in eight varieties shown by Messrs. Byvoet and Kersten, which were wonderfully good, but as they were not confined to a single stem it would be useless to give the measurements of the trusses.

The Hyacinths in pans were highly effective. Several classes were devoted to them. In most part the varieties were such favourites as Gigantea, King of the Blues, La Grandesse, Von Schiller, Pieneman, Czar Peter, Masterpiece, Baroness van Tuyll, and Latour d'Auvergne. In each pan were ten spikes, all well grown in nearly every case. Mr. J. B. Bos of Overveen, Mr. P. Louwerse of Schoten, and Messrs. E. H. Krelage & Son of Haarlem were the prizewinners.

The Hyacinths in glasses were very little inferior to those in pots, although less numerous. Nearly all were in what are known as Tye's glasses, and all of which were plain "window glass," none coloured. The first prize for sixty examples went to Mr. A. J. Blom of Overveen, who had a very fine collection; Von Schiller (8 inches by 4), Lord Derby, pale blue; King of the Blues; Fabiola, pink; Mr. Plimsoll, pure white; Marie, dark blue; and Lord Macaulay, bright red, of proportionate quality, speak well for the success of this method of treatment as practised by our Dutch friends. The doubles were particularly fine, far better, in fact, than when grown in pots, the spikes being much more closely furnished. A very fine collection from Mr. G. Van der Mei would probably have secured the first prize, but for an accidental transgression of the rules, which led to its disqualification. Messrs. P. van Velsen & Sons of Overveen and G. van Velsen of Haarlem also had some good flowers.

TULIPS.

While the Hyacinths were of exceptional quality the Tulips appeared to be nearer the average of former years. Messrs. L. van Waveren & Co. of Hillegom were first with 100 varieties, single and double, a neat fresh collection, but with somewhat small flowers. Such well-known varieties as Rose Gris-de-lin, Proserpine, rich rose; Vermilion Brilliant, scarlet; Artus, scarlet; and Silver Standard, crimson flaked with white, were good. Less known, but in most cases better varieties, were Roi Pépin, white flaked; Murillo, delicate blush, double; Mon Trésor, splendid rich yellow; Nelly, pure white, very large flower; Le Grandeur, crimson; Rachel Ruisch, white, tinted rose; and Adeline, rose. Messrs. M. van Waveren & Son were second in this class. Messrs. F. & H. van Waveren, Hillegom, won with thirty varieties; a very fine collection; Bride of Haarlem, flaked; Chrysolora, yellow; Joost van Vondel, red variety; Proserpine, rose; and Artus, scarlet; being all very good indeed. Messrs. F. & H. van Waveren also won with fifty varieties, amongst the best pots being Yellow Prince, L'Immaculée, white; Ophir d'Or, beautiful yellow; Joost van Vondel, white; Silver Standard, Bacchus, rich crimson; La Précieuse, beautiful pink; and Golden Standard. Messrs. L. van Waveren & Co. were second. They

had a splendid pot of the yellow variety Mon Trésor, a variety of great beauty. Messrs. F. & H. van Waveren were again first with fifty double varieties, their third victory in the first show in which they have competed, a result highly creditable to these young growers. Amongst the best of their flowers were Tournesol Red and Yellow, and Tournesol Yellow; Murillo, blush; Couronne d'Or, yellow; La Candeur, white; Blanche Hâtive, pure white; and Turhan Violet, violet. Mr. Polman Mooy of Haarlem was first with thirty-six doubles, and also with twenty; there was, however, nothing very noteworthy in the smaller classes for Tulips. Of the new varieties the most beautiful was one named Queen of the Netherlands, exhibited by Messrs. M. van Waveren and Sons. It is a very large flower, beautifully formed, soft blush, and as delicate and pleasing as a Tea Rose. Mr. P. W. Voet of Haarlem also showed a new double white named Snow White, which was honoured by the Jury. Tulips in glasses were also shown, and there were some excellent flowers amongst those of Messrs. L. van Waveren & Co., notably Joost van Vondel, Couronne d'Or, Proserpine, and Keyzers Kroon. Tulips are rarely grown in water in England.

NARCISSI.

These, as already indicated, were not shown to anything like the extent that they are at the spring shows in England. A length of 25 feet of tabling on the upper floor held the whole of them. Messrs. E. H. Krelage & Co. received the first prize for a collection of twenty-four pots. They had bico'or Empress, lorifolius Emperor, Henry Irving, Leeds amabilis, Hudibras, Barri Cinderella, incomparabilis angustifolius, Sir Watkin, incomparabilis Figaro, Leeds Duchesse de Brabant, and other good forms. They were also first with fifty pots, these including, besides those previously mentioned, Capax plenus, pallidus præcox, Burhidgei Mary, major, and Countess of Annesley; princeps, bicolor Michael Foster, Achilles, Golden Spur, moschatus alhicans, Johnstoni, conspiciuum, &c., &c. Messrs. van Eeden & Co. also had a good collection.

GENERAL EXHIBITS.

Crocuses were not numerous. They were shown in pans in the English style, and being much the same as regards quality hardly call for comment. Anemones were not quite open, or they would have been a very attractive feature. Grown in close masses in 8-inch pots, they must be very beautiful when in full bloom. Amaryllises were very well shown by Messrs. van Eeden & Co., Schertzer & Son, and G. C. van Meeuwen. If hardly up to our best standard they approached it closely. Othello, Marie Stewart, Conqueror, Enchantress, Evening Star, Mahomet, Masterpiece, Mierva, and Paul Krüger were all very good.

Collections of miscellaneous flowers in the body of the building, arranged on the grass, were very attractive. One from Mr. van Meeuwen included Iris reticulata Krelagei, I. persica, I. persica purpurea, Chionodoxa sardensis, Cyclamen repandum, Lachenalia luteola maculata, Muscari comosa, M. moschata major, M. hotryoides pallidus maculata, and other interesting flowers. In that of Messrs. van Eeden were a beautiful pan of Freesia Leichtlini, Scilla cernua, S. e. rosea, S. pyramidalis rubra, Corydalis bulbosa, Liliun Thunbergianum biligulatum, Iris Susiana, I. florentina alba, and others. From Mr. C. G. van Tubergen, jun., of Haarlem, came Tecophylæa cyanocrocus, Lachenalia aurea, Trillium sessile, T. erectum, T. grandiflorum, Fritillaria aurea, Iris Danfordiæ (Bornmülleri), Orchis undulatiflora, Aceras anthropophora, Orchis Robertiana, and many other plants. These groups were backed by Spiræas and Crown Imperials, and formed a very beautiful display. On an upper floor Mr. C. G. van Tubergen, jun., had a very interesting collection of dwarf Irises, including orchioides, tuberosus, Rosenbachiana, Cengialti, pumila var. lutea, stylosa var. persica, sindjarensis, and others.

In another issue something will be said about what, to most Englishmen, may be more interesting than the Exhibition—namely, the bulb farms. Several of them were visited, and as much information as possible derived about hulbs and hulb culture from those to whom hulbs are a life study. Shortly these farms will be in full beauty, and those who may be contemplating a holiday in search of health and recreation can hardly do better than run across for a few days in the first or second week of April. Haarlem is easily, quickly, and cheaply reached by the Great Eastern line from Liverpool Street, London, *via* Harwich and Rotterdam. The Dutch growers invariably give a warm and hearty welcome to visitors from England, and something will be seen that can be found nowhere else in the world.

ROYAL BOTANIC SOCIETY.

MARCH 26TH.

THE first spring Show of the present year in the Regent's Park Botanic Gardens was held on Wednesday, March 26th, and proved to be one of the best in the quality and variety of the exhibits the Society has yet held in this month. It was largely composed of non-competing groups and collections of flowers from nurserymen, the amateurs' exhibits and the competition in the classes being rather too restricted to be quite satisfactory. The corridor was filled, and a considerable space in the large conservatory was also occupied. The abundance of floral colour rendered the display very bright, but to produce a really tasteful effect more foliage was required, and it could not be compared in this respect with the summer Shows held on the undulated ground under the large tent. It is surprising that so little is done to diversify these spring Shows and introduce fresh features, though with so much material at command it ought to be easy to depart occasionally from the stereotyped plan.

Briefly noting the classes for competing exhibits we first come to the bulbs, and we find that with twelve Hyacinths Mr. J. Douglas, gardener to Mrs. Whitourn, Great Gearies, Ilford, was awarded the premier prize for excellent plants with very large spikes, the best varieties being The Sultan, Electra, La Grandesse, Mont Blanc, Vuurhaak, Czar Peter, King of the Blues, and Souvenir de J. H. Veen. Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, was second, and Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, third, with smaller plants. Messrs. Douglas & Eason were the prizewinners with Tulips, and Messrs. H. Williams, Douglas, and Scott were the exhibitors of Narcissi. Messrs. Paul & Son, J. Douglas, and R. Butler were the prizetakers for Amaryllises, all showing well. Cyclamens from Messrs. D. Phillips, the St. George's Nursery Company, and C. Nunn were well flowered as regards the two first-named.

Azalcas were bright and fairly good for the season. Messrs. Eason, Nunn, and Scott were the leading exhibitors in one class, and Messrs. R. Wells, Sydenham, and H. James in another, the plants of moderate size in each case. For six Deutzias Mr. Douglas was first, Mr. H. Eason being second with fine plants nearly equal to the first, and the Judges had some difficulty in determining their relative order. Messrs. Paul and Son, Cheshunt, were first in the two classes for hardy bulbs and hardy herbaceous plants, showing choice and interesting collections.

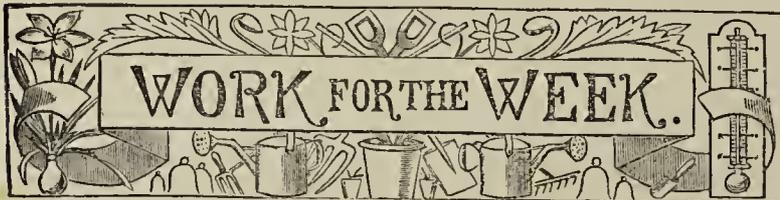
MISCELLANEOUS EXHIBITS.

Medals of various grades were awarded for the following exhibits:—Messrs. James Veitch & Sons, Chelsea, sent a group of Amaryllises, comprising some fine new varieties. Messrs. B. S. Williams & Son, Upper Holloway, had a similarly handsome group to that at the Drill Hall, Westminster, on the previous day, with some additions. Messrs. Laing & Sons, Forest Hill, showed a large miscellaneous group of plants, Orchids, Palms, Ferns, Azaleas, and Clivias predominating.

Messrs. Barr & Son, Covent Garden, had a large collection of Daffodils and hardy flowers. Messrs. Cannell & Sons, Swanley, showed Zonal Pelargoniums and double Cinerarias. The St. George's Nursery Company, Hanwell, had a large group of Cyclamens. Mr. J. James, Farnham Royal, showed a group of Cinerarias, and Mr. T. S. Ware, Tottenham, a grand collection of Daffodils.

Messrs. Paul & Son, Cheshunt, were the premier exhibitors of six Roses in pots, and they also had a large general non-competing collection of Roses. Messrs. H. Williams & Sons, Finchley, showed a large group of Hyacinths, Tulips, Spireas, and Narcissus.

Messrs. Wm. Paul & Son, Waltham Cross, had an extensive collection of Camellia blooms, representing all the leading varieties. Mr. Henry Bennett, Shepperton, had a box of the pedigree Tea Rose Princess Beatrice, extremely fragrant, fresh, and beautiful. Messrs. Cutbush & Son, Highgate, contributed a group of Epacris and miscellaneous greenhouse plants.



FRUIT FORCING.

VINES.—*Earliest House.*—The fermenting materials should be removed from the house before the berries commence colouring, retaining, however, about a couple of inches thickness as a mulch, and giving the inside border a thorough soaking with tepid liquid manure. After the Grapes commence colouring ventilate as freely as possible, and gradually reduce the atmospheric moisture. The temperature should be well maintained in the daytime, 70° to 75°, with 10° to 15° rise from sun heat, allowing the temperature to fall through the night to 65° or even 70° on cold nights.

Vines in Flower.—A steady circulation of warm rather dry air where Vines are in flower, with a temperature of 70° to 75° for Muscats and 5° less for Black Hamburgs, allowing an advance of 10° to 15° from sun heat, are essential. All shy-setting varieties should be fertilised artificially, dusting the bunches carefully with a camel's-hair brush, applying pollen from the free-setting varieties to the stigmas of the shy-setting sorts. We find it a good plan to brush over the bunches of the latter first, and then apply the pollen with another brush, this in both cases being used lightly.

Disbudding.—Do not attempt this until the bunches appear in the points of the shoots, and then it must not be done in a hurry, nor a large reduction made at a time, but proceed gradually and rationally, so as to give as little check as possible. Retain no more growth than will have full exposure to light, as crowding the foliage is one of the chief causes of disaster in Vine culture.

Stopping.—Wherever there is space allow the shoots with fruit to extend three or four leaves beyond the bunches before taking out their points. The laterals from the leaves below the bunches may be rubbed off, or they should be pinched at the first joint, but those above the fruit may be allowed to extend until the available space is fairly furnished, then pinch them and keep them within bounds afterwards by pinching to each joint of growth as made.

Thinning.—Remove all duplicate bunches before they flower, as it is

hardly likely one bunch well set well and the others indifferently. Free setting varieties may have the berries thinned as soon as they are out of flower, but Muscats and other shy setters should not be thinned until it is seen which berries have been properly fertilised. Instructions for thinning are extremely difficult to give, as the berries vary considerably in size in different varieties, and even different individuals of the same variety. Every berry should have room to swell without becoming wedged, and yet leave sufficient berries to ensure the bunch retaining its form when cut.

Watering, Feeding, Mulching.—From the time Vines are started there must not be any lack of moisture at the roots. It is not practicable to say how often the Vines should be watered through the borders being so variable in dimensions in depth and in their formation, as well as occupation with roots. A narrow border will need watering twice as often as one double the width, assuming the Vines to be equally extended and cropped, and a border of loose materials will require water much more frequently than one formed of firm retentive material, consequently the cultivator must be guided by the state of the Vines in relation to their rooting area. The proper plan is to examine the border, and when water is necessary give a thorough supply. Surface dressings of the approved artificials should be applied prior to watering, so that they can be washed into the soil in watering, or they may be applied in liquid form, a pound to 20 gallons of water being a suitable strength. The borders have been dressed at the usual season—*i.e.*, whilst the Vines are at rest, a dressing after the Grapes are set, and again about the completion of the stoning process, will help considerably, the material as regards inside border being washed in immediately, or a soaking at those times with liquid manure, and when the fruit commences colouring will assure the berries swelling to a good size. In the case of Vines restricted to narrow borders higher feeding will be necessary, affording liquid manure whenever there is need of moisture. Supply a mulching a couple of inches thick of rather lumpy manure, the best being stable manure freed of the straw.

Late Vines.—Those that have commenced growth may be syringed two or three times a day as well as those that have not started, and to secure an even break close with a moist atmosphere at 75°, employing fire heat as may be necessary to secure a minimum of 55°. Vigorous young canes do not break evenly. To prevent a rush of sap to the upper part they should be brought into a horizontal position until all the eyes have started, when the canes may be brought up to the wires.

Young Vines.—Vines planted last season and cut back to the base of the rafter or trellis at the winter pruning must be encouraged by gentle fire heat, so as to allow time for their making and perfecting a good growth. The laterals should be pinched at the first joint up to a height of 6 feet, which will not prejudice but rather augment the supply of nutriment to the principal leaves, and by the additional food assimilated cause the formation of fruit buds. The principal leaves must not be crowded by laterals.

Vines for Early Fruiting in Pots.—Cut-backs of last year's raising should receive their final shift. The pots, 12 inches in diameter, should be clean and efficiently drained, potting firmly in turfy loam, with about a tenth of old mortar rubbish and a twentieth of crushed bones, adding about a quart of some artificial to every bushel of compost. Bottom heat is not necessary, but if they are plunged in it, it should not exceed 80° to 85°, and they must not remain in it so long that the roots enter the plunging material. Keep the house rather close, and if the weather be bright shade for a few days. It is essential that the canes be trained near the glass, to ensure the solidification of the growth. Pinch the laterals at the first joint, and treat subsequent growths similarly, stopping the lead at about 8 feet.

Planting Young Vines.—This will require to be effected when the growths are an inch or two advanced in growth. Where provision has been made for inside and outside border, plant the Vines in the former, which will be sufficient for the first year; indeed a 4 to 6 feet width of border is sufficient in the first instance. The Vines, if cut-backs of last year, may be shaken out and placed in position either before or after they have grown to the extent of a couple of inches, the roots being disentangled and spread out evenly in the border, covering them about 3 inches deep, and watering moderately to settle the soil about them. Vines of the present year's raising will not need to be planted out for some time yet. They are preferably raised in squares of turf, and may be planted when the roots are protruding through the sides, or if in pots they should be turned out before they become root-bound. They will require to have a temperature at planting out time suitable to Vines in growth—*viz.*, 65° at night and 70° to 75° by day, with an advance of 10° to 15° with sun, but Vines of last year should be allowed to start unaided, syringing them two or three times a day according to the weather.

MELONS.—Early plants have made good growths, and are showing fruits upon the first laterals. To insure the fruit setting it is necessary to afford a bottom heat of 80° to 85°, and sufficient moisture only in the soil to prevent the foliage flagging. This will arrest growth, and in combination with a dry atmosphere—a circulation of warm air passing through the house—will favour the production of pollen. Fertilise the flowers every day, and stop the shoots one joint beyond the fruit. When the fruits commence swelling place warm soil against the sides of the ridges or hillocks. Supply water as required, avoiding a sodden condition of the soil, and to assist the swelling afford liquid manure, maintaining a good moisture by sprinkling every available surface morning and evening, and syringe the plants lightly at closing time in bright weather. If a succession of fruit be required in the same house some of

the plants should be deprived of the flowers if they appear on the first laterals, and stopping these at the third joint will cause the sub-laterals to appear and show fruit, which will be rather later and finer owing to the increased vigour of the plants.

Plants in pits and frames, with the shoots trained over the surface, will require to be treated in a similar manner to Cucumbers detailed below, lining the bed and adding to the soil as the plants advance in growth. Train and regulate the shoots, removing every alternate lateral, and apply water only to maintain a steady growth. The soil should be well firmed, so as to secure a sturdy short-jointed growth. As soon as the plants are ready they must be planted in beds properly prepared and seedlings potted. Seed may be sown to raise plants for succession, also for pits and frames as they become vacant through the removal of forced crops such as Radishes and Potatoes, about five weeks being required to secure strong plants.

CUCUMBERS.—*Pits and Frames Heated by Fermenting Materials.*—Beds that have been formed some weeks will need good linings. Remove as much of the outside of the beds as can be spared, and if the heat has not greatly declined it will suffice for the present if one half the bed be lined, deferring the other half until the heat is again declining. In any case let it be applied to a width of 2 feet, as thin linings are of little use and soon require renewal. When the heat is up in the linings see that there is no accumulation of rank steam in the frame, especially when the sun is powerful, preventing it by ventilation. A good night covering will be necessary to maintain a temperature of 65° to 70° at night. Admit a little air at 75°, and permit the temperature to increase to 85° or 90°, closing at 80° to 85°, not, however, causing the temperature afterwards to exceed 90°. Add a little more soil as the roots spread on the surface. Attend to training and pegging down the shoots, being careful not to overcrowd them. Stop the leading shoots a foot from the sides of the frame, and the laterals at one or two joints beyond the fruit. In watering avoid wetting the surface and foliage as much as possible. Sow seed to obtain plants for growing in pits and frames that have been occupied by early Potatoes.

PLANT HOUSES.

Lilium Harrisii.—Plants that have flowered should be cleared from aphides by fumigating with tobacco, and then place them in a cool house. Supply water carefully, and give weak stimulants occasionally, so that they will ripen their flower stems and mature their bulbs. If neglected in their present stage they will be useless, and might as well be thrown out as retained for flowering again. Later bulbs must be kept free from aphides, and should occupy a light airy position, so that their growth will be strong and sturdy. Later bulbs may be grown in cool houses, and may with advantage be given weak stimulants every time they need water.

Lilium candidum.—The earliest Lilies are pushing up their flower stems rapidly. Be careful not to hurry them in their present stage or half their flowers will fail to develop. Aphides are troublesome at this stage, and must be eradicated directly they are observed. Admit air freely whenever the weather is favourable, also supply weak stimulants. Plants in frames required to precede those outside should have the lights thrown off on fine days, or they will come forward too rapidly.

Late Primulas.—Sturdy examples in 4-inch pots should occupy a cool airy place with a moist base. Give clear soot water every time they need water. Where seed is saved select from the plants now pushing up their flowers the number required, and place the plants on a shelf with a sunny position, where they can enjoy a good circulation of air. To be successful in saving seed a fine camel's-hair brush should be used and the flowers examined daily. It does not take long with a fine brush to convey the pollen from the stamens to the pistil, which will insure seed pods. With many varieties this is the only means by which seed can be obtained. When seed pods are formed in sufficient quantity on each plant remove all the remaining flowers, so that the plants can devote their energies to the development of the seed. Do not neglect the plants in this stage, but give weak stimulants every time they need water. Keep the plants healthy until the seed is ripe, and not dried up as is too generally the case. For seed bearing it is a mistake to depend upon plants that have been flowering profusely for some weeks past.

Cinerarias.—Plants coming into flower will be plentiful at the present time, but the latest plants should be sorted without delay. These will be invaluable after Hyacinths are past their best. Place all the latest in cool frames where they are not too fully exposed to the sun and where abundance of air can be given during the day. It may still be necessary to protect them with mats during cold or frosty nights. The remaining batch may occupy a cool airy position in the greenhouse. These should have clear soot water every time supplies of water are needed.

Calceolarias.—These must not be checked or kept on a dry stage, or they are certain to be attacked by aphides, which quickly destroy them. The earliest plants must have a cool airy position in the greenhouse, and the stage upon which they are standing must be kept moist. Later plants will do in cold frames. They should be placed into their flowering pots from time to time as they become ready, for growth will now be vigorous and free providing they are kept clean. Do not allow the plants to become dry at their roots. On the other hand, if once the plants are well rooted liberal supplies are necessary. Clear soot water is very beneficial, and not only acts quickly but imparts to the foliage a fine dark healthy appearance.

Avidistras.—Plants may be divided where it is necessary to increase

the stock. Those in 5 or 7-inch pots are the most useful. One large plant can be divided into a good number; one leaf and a lead is ample, and these should be placed singly in 3-inch pots and placed in a temperature of 55° to 60°. They will soon commence to root and become established, when they may be grown on in almost any position. They make greater progress in a little warmth than when grown perfectly cool, but they do not flourish satisfactorily in too much heat. Small pieces of this nature make excellent plants the second season if treated liberally from the time they are divided.



NOTES ON BEES.

ANTS IN HIVES.

"R. A. C." fails to keep ants from destroying his bees. The species known as the "large horse ant" infests his hives and kills the bees. The chalk line successfully used by the soldiers in India for keeping the ants from food is partly a failure with him.

There are numerous contrivances for preventing ants invading edible property which they are fond of. Moats are effectual, but some of them are expensive to furnish hives with. If hives stand upon a single post a zinc cup for the post with a hollow centre and the outer cup filled with some liquid will prevent any invasion. When the hive stands upon four legs any kind of cup or saucer may be employed. Deep-bottomed bottles are sometimes numerous enough about some establishments. By letting these into the ground neck downwards, and partly fill with water, then a little oil to prevent evaporation, the plan will be effectual. If rain can be kept out of them oil of itself will do. In that case the legs of the hive will not be injured by standing in it; but if there is water, a little block of wood or piece of tile or stone for the feet to rest on out of the water they will not decay. Carbolic acid is disliked by ants.

THE PUNIC BEES.

March has not been favourable for garden and field operations, nor for bees—at least, so far as it has gone, and we are now past the equinox. Our Punic stocks with two exceptions are the weakest we have. The black Punicians have been busy at work. Their industrious habits, together with their extreme hardiness, so far as my experience goes, augurs well for the future, and confirms "A Hallamshire Bee-keeper's" account of them. I trust that their important properties, so desirable and necessary in bees when profit is the aim, will be realised, and so confirm the rest that he has told us of the little strangers, which seem as docile as they are industrious.

DEVICE FOR HIVING.

An American invention, meant to prevent the loss of swarms, is made of queen-excluder zinc, in the form of a tunnel, having a wooden floor reaching from a hive likely to swarm to an empty one placed a few feet to the right or left of it. It has been improved upon in England by placing the empty hive in front. The idea is to induce the bees to swarm right into the empty hive in front. Will it succeed? Although much has been said in favour of the English improvement by doing away with a narrow portion in the centre of the tunnel, I am not hopeful that either device will succeed. They are, as yet, both untried.

When bees are in the act of swarming they are intent on flying at an increased velocity. The zinc, instead of leading them quietly to what might be their new home, will incite their frenzy to escape from the meshes of the zinc, which they are sure to do. If the queen is unable to get through, the bees outside will be apt to fly on to other hives, and if the weather is chilly many will be lost. Stranger bees sometimes kill queens of the hives they fly to, and by one mistake many hives might be destroyed. When bees are intent on swarming, instead of obstructing them give free passage, and let the queen go with them as an inducement to settle and cluster quickly. If a hive is supplied with one of the devices,

the queen kept prisoner, and the bees returning will simply cluster out, and in all probability the queen will be mutilated or killed, and a young queen will soon reign in her stead, much to the loss of the bee-keeper.

It is considered illegal and dishonest in Scotland to have decoy hives in the apiary; but when they are kept with an honest intention they need not be objected to. Hollow trees or boxes covered with bark, having some combs within, and under or opposite a door or hatch, are capital as decoys for swarms. We have had bees take to combs and store honey 3 feet from their hive, and knew of a bellglass belonging to "R. S., Dumfriesshire," filled under similar circumstances with pure comb and honey. I have also worked bees on the collateral principle, the hives standing some inches separate, but this is not commendable, and is not swarming.

I have used a tunnel covered with glass, fitted with two slides, when driving bees; when the queen appeared between the slides they were chased and the queen secured. The same device I have used for living bees, the tunnel being connected to the two hives; the one containing the bees had no outlet saving through the tunnel.

In the American device I have no faith whatever, and the English one is only a little different in form, which, owing to the bees' love of liberty, they will, I feel sure, reject. When bees take to a hive containing combs of their own accord the queen follows, but when force has to be used the queen enters reluctantly, and often deserts the furnished hive. It is good that this is so, or many hives would be destroyed, but the nature of the bee is against it. The knowledge of locality and sense of smell, so great in the queen, prevents her making any mistake to re-enter her own hive, although standing close to another. I do not believe queens get lost through entering adjoining hives, although reputed to do so. It is the bees that work the mischief; many cases of the kind I can trace to mere stupidity of the owner or his adviser, by manipulations quite uncalled for.

FEEDING.

Neglect of timely feeding now will prove disastrous to those in immediate want. From 4 to 6 lbs. of syrup given as quick as the bees will take it, will in no way injure the hive, nor the honey that may be taken further on in the year. Many stocks are far reduced in stores, but have in place many youthful bees, ready to take advantage of the early flowers and fruit blossoms that will be appearing in about two weeks hence, and swarming, weather permitting, will begin in May. In all my experience I do not remember a season when bees were so far advanced at this date as they are at the present time.—A LANARKSHIRE BEE-KEEPER.



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (E. H. and A. M.).—We have published the address you require so often that we fear the repetition is becoming tedious to some readers. It is Mr. Collins, 9, Martindale Road, Balham, S.W.

Calendar (S. O. G.).—We are not acquainted with any work of the precise nature indicated in your letter.

Spots on Peaches (F. W.).—The spot is caused by a fungus, but whether this is the result of the fruits not stoning as they should do cannot be satisfactorily determined. We rather suspect this may be the case, and if so the evil may arise from either defective fertilisation or a deficiency of calcareous matter in the soil. Try one of the fungicides, such as sulphur or sulphide of potassium to the affected fruits, also a copious application of lime water to the border.

Sowing Pandanus utilis (Seeber).—Do not attempt to break the fruit, *i.e.*, seed, open, but place them in pots or pans of light soil—turfy loam with a third of leaf soil and a sixth of sand—placing the thick end downwards, point or small end upwards, and cover about an inch deep. Place the pots in a house with a temperature of 60° to 65° at night, and 70° to 75° by day, with 10° to 15° advance from sun heat; with uniform moisture plants will appear in due course, and when they are sufficiently advanced they may be placed singly in 3-inch pots. If two plants come from one seed, or "fruit," they are easily divided when potting.

Fragaria indica (Idem).—It is a pretty greenhouse plant, with red, insipid fruit, yet decidedly ornamental. It is of trailing habit, like the Strawberry. Seed may be sown in pots or pans, just covering the seeds, and placing in a house where there is a gentle warmth. Let them grow near the glass, and when large enough place singly in 3-inch pots, shading from bright sun until established. Eventually remove them to a greenhouse, and shift into larger pots as required. Six-inch pots are sufficiently large for fruiting. Accord the same soil and treatment as to Strawberries in pots.

Strawberries not Swelling (Anxious).—The misfortune is due to the too hasty development of the flowers. They are perfect as regards the calyx and corolla; the stamens too may acquire their yellow colour, but are useless if the pistils are a mere tuft of abortions, and shrivel into black masses. This can only be prevented by giving the plants more time. They require to be brought on very gradually, growing them slowly until the fruit is set in order that the parts of fructification may have time to form, as they naturally do, in gradual succession. We have not found either the Captain or Noble suitable for early forcing, though good for succession. As an early forcer we have found La Grosse Sucrée one of the best.

Value of Asparagus and Seakale (E. E. W.).—Your district produces some of the finest Asparagus in the country, and you ought to be able to obtain some valuable information from local growers. Much in every case depends upon the suitability of the soil and the method of culture adopted. If your land resembles that of the Vale of Evesham generally it will stand abundance of manure, and the Asparagus will succeed best planted on the level. The rows ought not to be less than 30 inches apart, a similar distance dividing the plants in the rows. In this case you would require about 7000 roots for an acre of ground. Not till these have been planted five or six years will they be very profitable, but if well attended to they will continue improving in value for many years. When in its prime an acre of Asparagus ought to be worth £200. You omitted to state whether the Seakale is to be lifted for forcing, or grown or blanched on the same ground for several years in succession. Supposing the former plan is intended you would require about 23,300 roots or cuttings, putting these out 18 inches by 15 inches apart, and if very good their market value at the end of the season would be somewhere about 10s. per 100.

Mildew on Roses in Conservatory (St. Julia Arabi).—Mildew is apt to prove destructive in injudiciously ventilated structures. It may often be checked or even prevented by attention to ventilation. Sulphur has proved the most reliable means of destroying the fungus. Flowers of sulphur dusted over the affected parts will destroy it, but as this may be inconvenient, boil 1 lb. flowers of sulphur and 1 lb. of quicklime in 3 quarts of water in an earthen vessel for fifteen minutes, keeping constantly stirred while it is boiling; allow to settle, and pour off the clear liquid for use, keeping it in a well stoppered or corked bottle. A quarter of a pint of the lime and sulphur preparation should be added to 3 gallons of rain water, and the Roses infested with mildew syringed with it thoroughly so as to wet every part. Allow the foliage to become dry, and in the course of a day or two repeat the application. Two or three syringings will mostly eradicate the fungus. As a preventive the Roses may be occasionally syringed with a weak solution of softsoap, a couple of ounces to a three or four gallon watering pot of water, using it in a tepid state or 90°, thoroughly dissolved and mixed. Keep the roots moist, and take care that cold currents of air do not drive against the plants.

Barbe de Capucin—Haricot Beans (Inquirer).—The Barbe de Capucin of the French is the growth of the common Chicory, forced in the dark, and used as salad. Some persons like it cooked, but for this purpose the large Brussels Chicory is preferable, the crown being made to push through 7 or 8 inches of light soil in the open, or for early use forced in the dark. This is known as Witloof. Sow seeds of either or both in drills 18 inches apart in deep rich soil in April or early May, thin out the plants as if they were Parsnips, and you will have good roots for forcing in the autumn. You can procure either tall or dwarf Haricot Beans from seedsmen. They are varieties of Kidney Beans, the tall sort sown and supported like Scarlet Runners, the dwarf like the so-called French Beans. The seeds are cooked when they get firm, also when gathered before they get quite hard, all through the winter. There appears to have been a little delay in the

delivery of your letter, but these replies are quite soon enough for your purpose.

Angelica Culture (F.A.).—It grows well in any good soil, but succeeds best in cool and moist situations, so that instead of a south it should be given a north border. It is raised from seed which may be sown now, or preferably in August, or as soon as the seed is ripe. The seed bed should be frequently watered if the weather be dry, also the young plants. If sown in spring they should be thinned to 2 feet apart every way, allowing them to remain where sown, or if sown in August or September the plants should be planted in March 2 feet apart every way, keeping them free of weeds and in dry weather affording plenty of water. The stalks will be fit for use in May or June of the following year, when the stems should be cut down so as to keep the plants from flowering and seeding, then they will live for three years, otherwise the plant is a biennial. The preserved Angelica you mention is in all probability grown in England, it being very extensively grown about London many years ago.

Arum Lilies and Freesias for Market (C. M. E.).—Arum Lilies meet with a ready sale and fetch good prices, or, say, not less than 6s. a dozen wholesale at Christmas and Easter, and they also sell fairly well at other times. You cannot do better than grow them extensively, but you will have to completely change the flowering season, as it is very certain plants flowering in June would be of no value for midwinter work. What you have to do is to retard growth as much as possible, and this can best be done by lifting the roots at once and exposing them to what cold winds you may experience in your somewhat favoured Isle of Guernsey. They will stand much rough usage, but should be replanted in a cool position before the growths are far advanced. After the houses are cleared of Tomatoes the Arums might be lifted and replanted in the borders not later than the first week in October. This class of plants will be treated upon by our correspondent "M. H.," and probably you may be able to glean a few serviceable hints from his paper on the subject. Freesias are fast becoming popular, and there is a fairly good demand for the white variety (*F. refracta alba*) especially. Unlike several other bulbous rooted plants that could be named, the same stock will improve in value after the first year, and their cultural requirements being of the simplest description you could grow them extensively without adding to the working expenses of your establishment. Christmas Roses pay well, and so also do late Chrysanthemums, these being grown in the open ground and transplanted to the borders in light structures. Why not grow Narcissi extensively on the same lines as adopted on the Scilly Isles?

Increasing Lobelias (J. S.).—The ordinary bedding Lobelias are propagated by division and cuttings in preference to seedlings, the latter rarely being sufficiently neat-growing. Bluebeard, *pumila magnifica*, and Brighton are all excellent blue sorts, and supposing a number of plants of either of these have been wintered in boxes in a rather low temperature, on being introduced into an early vinery or in a moist heat every shoot will quickly emit roots. These may be pulled off and dibbled in rather thickly in boxes and eventually bedded-out in cold frames, or, if a little bottom heat is available, these divisions may be placed on beds of good soil and about 4 inches apart each way, where they will soon grow to a good size, the frame or lights being then available for other purposes, some other protection being provided for the Lobelias. Thousands of good plants may thus be raised without much trouble. Seedling Lobelias should be pricked out before becoming crowded and weakened. The herbaceous sorts may be divided when the suckers are well above the soil.

The Lackey Moth (Subscriber).—The following methods of prevention and remedies are recommended by Miss Ormerod:—"Some good may be done by looking for the rings of eggs on the shoots, cutting these off and destroying them; also by destroying any yellow silken cocoons that may be found about the trees; but these methods are tedious, and, though they are of use where just a few trees can be carefully tended, are of little service in orchard treatment. A far better way is to watch for the webs, and, as soon as they are seen, to carry out the old French method and cut the shoots through with a pair of nippers and destroy them. It is well for one person to cut and another to hold a pail below for the web and all the caterpillars (which on the first alarm would throw themselves down by their threads) to fall into. The pail should have a few inches depth of water in it, or mud thick enough to prevent the caterpillars from escaping. A less troublesome but less complete method is to shake the boughs, or strike them smartly, so as to make the caterpillars drop, and sweep those that dangle by their threads in the air down with the band. These may be trampled on, or gas-lime, quick-lime, or anything that will kill them may be thrown on them, but it should be done at once. As the moths harbour under leaves and long grass, a properly kept state of undergrowth in orchards, free from overwhelming weeds and rank herbage, is of service in preventing attack. Much more attention to this matter is needed relatively to keeping down Apple pests than is commonly supposed. The dark, damp, confined air of the neglected overcrowded orchard fosters all kinds of insect pests, and as no grass cut in such circumstances would dry it is often left for rough feeding, or an occasional "skirming" of what is too long to remain uncut, and thus "pests" have possession; whilst where the trees stand apart, as they should, there is sunshine and fresh air to cause ripened growth, and lighten up the dark nooks that insects hide in. The grass can be properly pastured and attended to, and also the small birds have fuller access to do their work as insect-clearers."

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be preserved. (*J. M.*)—The stewing Pear is Catillac. (*Henry Jones*).—The Apple sent is assuredly Ashmead's Kernel; the other must be wrong. (*F. K.*)—Not in condition, soft, bruised, mealy, and cannot be named.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*C. N.*)—The plant is *Selaginella lepidophylla*, and will revive if placed in water, or it can be potted in peat, and will probably recover and grow if placed in a stove or any warm house. (*J. A. W.*)—We cannot undertake to name Roses; see our regulation above. (*S. T.*)—1, *Iris reticulata*; 2, *Anemone fulgens*; 3, *Anemone apennina*; 4, *Leucojum vernum*. (*W. R. B.*)—1, *Odontoglossum Edwardi*; 2, *O. Cervantesi decorum*; 3, *O. blandum*. (*X.*)—1, *Adiantum macrophyllum*. 2, *Lomaria blechnoides*; 3, *Lomaria gibba*. (*R. H. F.*)—1, *N. Telemonius plenus*; 2, *albicans*; 3, Too withered for identification.

COVENT GARDEN MARKET.—MARCH 26TH.

MARKET still very quiet with early forced goods in fair supply, and prices barely maintained.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, ½ sieve	2	0	to	6	0	Oranges, per 100	4	0	to	9	0
" Nova Scotia and	2	0	to	6	0	Peaches, dozen	0	0	to	0	0
" Canada, per barrel	18	0	to	25	0	Red Currants, per ½ sieve	0	0	to	0	0
Cherries, ½ sieve	0	0	to	0	0	Black	0	0	to	0	0
Grapes, per lb.	3	6	to	5	0	St. Michael Pines, each ..	2	0	to	6	0
Lemons, case	10	0	to	15	0	Strawberries, per lb.	4	0	to	12	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Artichokes, dozen	0	0	to	0	0	Lettuce, dozen	0	9	to	1	3
Asparagus, bundle	6	0	to	12	0	Mushrooms, punnet	1	6	to	2	0
Beans, Kidney, per lb. .. .	1	6	to	0	0	Mustard & Cress, punnet	0	2	to	0	0
Beet, Red, dozen	1	0	to	2	9	Onions, bushel	3	0	to	4	0
Brussels Sprouts, ½ sieve	1	6	to	2	0	Parsley, dozen bunches	2	0	to	3	0
Cabbage, dozen	1	6	to	0	0	Parsnips, dozen	1	0	to	0	0
Capiscums, per 100	0	0	to	0	0	Potatoes, per cwt.	3	0	to	4	0
Carrots, bunch	0	4	to	0	0	" New	0	3	to	0	6
Cauliflowers, dozen	2	0	to	4	0	Rhubarb, bundle	0	2	to	0	0
Celery, bundle	1	0	to	1	3	Salsify, bundle	1	0	to	1	6
Coleworts, doz. bunches	2	0	to	4	0	Scorzoneria, bundle	1	6	to	0	0
Cucumbers, doz.	4	0	to	7	0	Shallots, per lb.	0	3	to	0	0
Endive, dozen	1	0	to	0	0	Spinach, bushel	1	0	to	2	0
Herbs, bunch	0	2	to	0	0	Tomatoes, per lb.	0	6	to	0	9
Leeks, bunch	0	2	to	0	0	Turrips, bunch	0	4	to	0	0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Acacia or Minuosa, French,	1	0	to	1	6	Marguerites, 12 bunches	2	0	to	6	0
" per bunch	1	0	to	1	6	Maidenhair Fern, dozen	4	0	to	9	0
" per basket	3	6	to	7	6	bunches	4	0	to	9	0
Arum Lilies, 12 blooms .. .	3	0	to	5	0	Mignonette, 12 bunches ..	2	0	to	4	0
Azalea, dozen sprays	0	6	to	1	0	" Fr., large bunch	1	6	to	2	0
Bouvardias, bunch	0	6	to	1	0	Narcissus, French, 12	1	0	to	3	0
Camellias, dozen blooms	1	0	to	4	0	bunches	1	0	to	3	0
Carnations, 12 blooms .. .	1	0	to	2	0	Pelargoniums, 12 trusses	1	0	to	1	6
Christmas Roses, 12 blms.	0	0	to	0	0	" scarlet, 12 bunches	6	0	to	9	0
Chrysanthemums, dozen	0	0	to	0	0	Primula (double) 12 sprays	1	0	to	1	6
bunches	0	0	to	0	0	(single) 12 sprays	0	6	to	1	0
Daffodils, dozen blooms .. .	0	4	to	1	0	Roses (indoor), dozen .. .	1	6	to	3	0
Deutzia, per bunch	0	6	to	0	9	" Red, 12 blooms	4	0	to	8	0
Epiphyllum, doz. blooms	0	6	to	0	9	" Tea, white, dozen .. .	1	0	to	3	0
Encharis, dozen	3	0	to	4	0	" Yellow	2	0	to	4	0
Gardenias, 12 blooms .. .	6	0	to	12	0	" French, per bunch	1	6	to	5	0
Hyacinths (Roman) dozen	0	0	to	0	0	Spiraea, dozen bunches .. .	6	0	to	9	0
sprays	0	6	to	1	0	Stephanotis, dozen sprays	0	0	to	0	0
Lapageria, 12 blooms .. .	2	0	to	4	0	Tuberose, 12 blooms .. .	1	6	to	2	0
Lilium, various, 12 blms.	2	0	to	4	0	Violets, dozen bunches .. .	1	0	to	2	0
Lilium longiflorum, 12	5	0	to	8	0	" French, per bunch	1	0	to	2	0
blooms	5	0	to	8	0	" Parme, per bunch	3	0	to	4	0
Lily of the Valley, dozen	0	6	to	1	0	White Lilac, French, per	4	0	to	6	0
sprays	0	6	to	1	0	bunch	4	0	to	6	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi, dozen .. .	6	0	to	12	0	Ficus elastica, each .. .	1	6	to	7	0
Arum Lilies, per dozen .. .	12	0	to	18	0	Foliage plants, var., each	2	0	to	1	0
Arbor Vita (golden) doz.	6	0	to	4	0	Genista, per dozen	3	0	to	1	0
Azalea, various, per dozen	18	0	to	30	0	Hyacinths, 12 pcts	6	0	to	9	0
Christmas Rose	0	0	to	0	0	Lily of the Valley, 12 pots	18	0	to	30	0
Cineraria, per dozen .. .	8	0	to	13	0	Marguerite Daisy, dozen	6	0	to	12	0
Cyclamen, per dozen .. .	12	0	to	24	0	Mignonette, per dozen .. .	0	0	to	0	0
Daffodils, 12 pots	6	0	to	9	0	Musk, per dozen	0	0	to	0	0
Deutzia, 12 pots	12	0	to	18	0	Myrtles, dozen	6	0	to	12	0
Dracena terminalis, doz. 24	0	42	to	0	0	Palms, in var., each .. .	2	6	to	1	0
" viridis, dozen	13	0	to	24	0	Primula (single), per doz.	4	0	to	6	0
Epiphyllum, per dozen .. .	0	0	to	0	0	Rhodanthe, per dozen .. .	0	0	to	0	0
Erica, Cavendishi, per pt.	2	0	to	3	0	Roses (Fairy), per dozen	1	0	to	12	0
" various, dozen	12	0	to	18	0	" 12 pots	12	0	to	18	0
" ventricosa, per doz. 18	0	3	to	0	0	Saxifraga pyramidalis,	0	0	to	0	0
Enonymus, var., dozen .. .	6	0	to	18	0	per dozen	0	0	to	0	0
Evergreens, in var., dozen	6	0	to	24	0	Spiraea, 12 pots	12	0	to	18	0
Ferns, in variety, dozen .. .	4	0	to	18	0	Tulips, 12 pots	6	0	to	9	0



ENSILAGE.

In our farm work note last week one or two hints were given about the sowing of special fodder crops now for conversion into silage in July. This was mentioned as an ordinary detail of farm work, but a little thought subsequently brought conviction that it is by no means a part of ordinary farm practice, that silage stacks are still an uncommon thing at farm homesteads, and that the matter was of such importance as to be worthy of more prominent notice.

For ensilage to supplant either haymaking or root crops, or both, its real value must be ascertained by actual experience; and this little golden bit of practical knowledge, this new influence upon the prosperity of agriculture, should no longer be left in the region of doubtful things, but be tried out by every farmer, and more especially the heavy land men. To farm strong land at all now requires extraordinary ability if it is to be done successfully, and if only a tithe of the pains bestowed upon root culture in such land were given to ensilage, the certain resultant benefit would ensure its speedy adoption; for root culture in a clay soil is always a speculative matter, and root crops are so expensive that they would certainly be avoided altogether if only farmers knew how to do it.

Let us briefly glance at the advantages of ensilage. Given the materials it enables us to ensure an ample provision of winter food for cattle, horses—aye, and sheep too, for even lambs will eat and thrive upon it. Silage is at least as wholesome, nutritious, and palatable as the best meadow hay, and it is cheaper than hay or any other cattle food, for not only is the bulk of it per acre much greater than any other stored forage, but the process of ensilage is so simple, and withal so sure, that the entire outlay involved consists in the cost of mowing, carting, stacking, and pressing the forage. Costly means of compression may be avoided. The first silage we made was pressed with boxes filled with iron slag—gravel or sand would have answered equally well, and on page 166 a correspondent tells how he had made good silage of aftermath stacked and pressed by bricks. We have only to try and get as full and bulky a crop as we can, and we can mow, cut and stack it whether wet or dry, only we must be careful to put on the pressure at once. That is all; can anything be more simple? Of crops suitable for ensilage besides meadow grass there are Lucerne, Tares, Oats, Rye, Italian Rye Grass, mixed layers of grasses and Clovers and Trifolium. Two bushels of Tares and 2 bushels of Oats per acre make an excellent mixture for silage, or we might use only a bushel of Tares and add a bushel of Italian Rye Grass. As we pointed out last week, by sowing at once the crop would be ready for stacking in July, so that it might be cleared, the silage made, and the land prepared for Wheat before the corn harvest begins. The cost, anxiety and uncertainty of root culture would thus be avoided and an ample provision be made for winter of sound nutritious food.

The cheapness of hay during the past winter ought not to induce carelessness about ensilage. The abundance of good hay made last year cannot make us forget the lamentable failure of the supply after the wet summer of 1888. We are now using for litter a stack of 1888 hay, which we had to take in valuation last Michaelmas. The owner of this stack of spoilt hay could neither use nor sell it, and so got a trifle in valuation when he left his occupation. Had it been made into silage it would have been just as valuable for home consumption as the best hay. A wet season or two would tend more to popularise ensilage than anything else. Yet we cannot but regret the general slowness to

adopt a process that is so eminently calculated to promote the general good.

We have given root culture a fair trial at a clay farm for four consecutive years. A considerable quantity of white Turnips, Swedes, and Mangolds have been grown every year, but we have not had a full crop of all of them in any one year. Last year it was the Mangolds which failed us, and we did not get more than half a crop. The bailiff was loud in his complaints about inferior seed, but we could not agree with him, for our seed order was sent to an excellent firm who supplied all our farms, and as usual the result was very much in accordance with the nature and condition of the soil in which the seed was sown, with the exception that on the light land of the home farm the Mangold crop was for once superior to that of the mixed soil farm, owing to the fact of the season being so favourable for light land. The soil of the heavy land farm that is so inimical to the growth of roots yields heavy crops of most forage plants—*ergo*, a greater area of that farm has been devoted to forage crops of all kinds year by year, and there has been a proportionate curtailment of root crops. By ensilage we are always able to insure an ample supply of winter food; but we do not go to a ridiculous extreme with it, but make some hay, graze a considerable number of home-bred cattle and sheep, and harvest as much Clover and Sainfoin seed as we can.

WORK ON THE HOME FARM.

In top-dressing winter corn some judgment is required, because the condition of the plant now should be our guide in what is done. Our knowledge of the condition of the soil too must also have its due influence upon our decision, and there should be no line and rule work at all in the use of manure. When a recipe of the best chemical manures is given for a top-dressing it becomes a matter for each individual to decide upon. Do all or any of my Wheat fields require such help now? If the land has the benefit of thorough cultivation, if no crop has been sown for some time with a manure dressing, and if the plant of the present crop by its robust vigorous appearance shows that the soil is rich in fertility, then let us by all means let well alone, and reserve the manure for some other purpose. But if the fertility of the soil is low or even doubtful, and the plant though healthy enough is somewhat weak, then apply a top-dressing at once. Or if a yellow failing plant conveys unmistakably to the eye intelligence of the presence of wireworm, then top-dress at once and follow with a cross-hill roller, which if it does not crush the wireworm serves, at any rate, to close the soil and so check its depredations that the plant under the fillip of the manure grows out of harm's way before the wireworm can get at it again.

Lent corn has gone in well, Barley especially having quite a model seed bed for once both in the autumn ploughed land and in recent ploughings after the sheep folds. The temptation to sow this favourite crop is more than usually great, but pray remember, Mr. Heavy Land Farmer, that though you may have got a heavy seed bed, yet how often has your Barley failed through unkind weather at critical stages of its development later on. Why, therefore, stick to a crop which has so often failed you? Rather, much rather, sow a good sample of Black Tartar Oat, and do try not only to do yourself some good, but also to raise the shamefully low average of this much abused and neglected crop. The ordinary average of the Oat crop in Great Britain is 30 bushels per acre, the possible average is more than twice that quantity. Need we point the moral?

METEOROLOGICAL OBSERVATIONS.

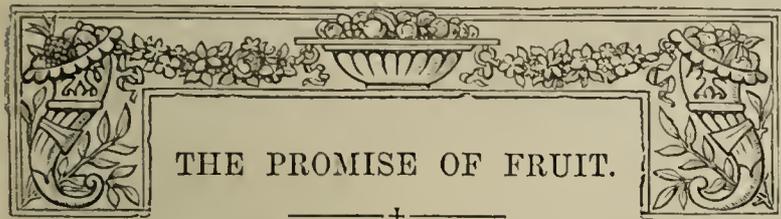
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 39° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1890.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.
March.										
Sunday	29.965	51.3	47.8	S. E.	42.2	58.2	43.2	98.9	36.4	—
Monday	29.382	42.2	39.9	E.	42.9	53.3	36.5	97.8	31.9	—
Tuesday	29.485	40.6	38.2	E.	41.9	52.1	33.2	94.9	27.8	0.142
Wednesday ..	29.453	41.6	41.2	N. E.	41.9	45.0	39.7	64.1	36.1	0.479
Thursday	29.392	36.7	36.7	N. W.	41.7	43.3	34.1	51.9	33.1	0.100
Friday	29.612	39.3	37.9	W.	40.6	52.9	32.7	98.1	28.1	0.029
Saturday	29.772	42.9	42.2	S. W.	40.8	53.7	34.1	93.8	29.1	0.023
	29.489	42.1	40.6		41.7	51.2	36.2	85.6	31.8	0.764

REMARKS.

16th.—Sprinkles of rain at 7 and 9.15 A.M., and in afternoon, otherwise generally bright.
 17th.—Brilliant morning, fine pleasant afternoon.
 18th.—Cloudy early, bright day; shower in evening.
 19th.—Wet till 10 A.M., then cloudy, and occasional drizzle in afternoon.
 20th.—Very wet all morning, then dull, damp and showery.
 21st.—Bright early, then cloudy and spots of rain at 11 A.M.; fine afternoon with occasional sunshine.
 22nd.—Wet early, cloudy from 9 to 11 A.M., then fine and bright; solar halo at 3 P.M. and spots of rain in late evening.
 A damp week, with low barometer and temperature near the average.—G. J. SYMONS.



THE PROMISE OF FRUIT.

IT does not follow, as most persons know who have had much experience in fruit culture, that a great display of blossom always results in abundant crops of fruit. On the contrary, it will be within the knowledge of not a few readers of these lines that when trees have been densely packed with flowers in spring they have often been almost or quite destitute of fruit in summer, and this when the weather has not been regarded as unfavourable for fructification. When the blossoms are so crowded on spurs and sprays that they have not room for expansion we can scarcely expect that they should be so strong and perfect individually as if they were more thinly disposed, and we think it has been found that the removal of blossom buds before expansion—thinning out much more than half of them—has been advantageous, those remaining having developed better, and set fruit accordingly. The practice, for obvious reasons, could not be pursued through extensive plantations of fruit and with large orchard trees; but the experiment is well worth trying on small trees, from which a moderate crop of fine fruit is more desirable than a heavy and exhausting crop of small trashy examples, and certainly than no fruit, as when all the blossoms fall from the trees that were clothed with them so completely. When this happens under favourable weather conditions at least one cause of the supposed mysterious occurrence is probably the inherent weakness of the blossoms as the result of overcrowding.

Fruit crops fail from other causes, and unfortunately it is not in the power of man to prevent the calamity. Sharp frosts at a critical time have often destroyed the essential organs of the flowers, though the petals have expanded as if nothing was amiss. The prospect of fruit was of the brightest, but the beautiful spectacle of the chastely robed trees was delusive. It is possible that this may have been the case with Apricots if not Peaches in some districts last month, when they were overtaken by the sharpest frost of the winter. Ordinary nets are useless against such a visitation, while keeping trees covered with heavier material day and night during all sorts of weather is no security against failure, and in many cases at least as much harm as good has been done by permanent blinds. When the blinds are moveable, and only used when needed, also stout enough to shield from even a severe frost, they are of great service, and have often prevented the loss of what they have saved—valuable crops of fruit. Fruit fails to set through other elemental conditions. Continuous showers and moisture-laden atmosphere for a week or more have prevented the dispersion of pollen, and destroyed all hope of the setting of fruit. Weather the direct opposite in character has had similar results; unclouded sun, parching winds, and dewless nights causing the flowers to wither prematurely, and leaving no fruit behind them. Such visitations have often been stern realities, and may be again, though we hope not this year; but because of the possibility no one can be assured that a good show of blossom will be followed by a rich harvest of fruit, yet we are all pleased to see the blossom.

Its safety or otherwise often largely depends on the period of its expansion, and to some extent possibly on its structure, but more than all on the position of the trees. It does not follow that early flowering varieties succumb because of their precocity, and late blossoms escape because of their tardiness in expansion,

for if the weather is favourable for setting when the early openers are in full floral beauty, and unfavourable when the late flowering sorts are similarly gay, the former consequently bear good crops of fruit, the latter light crops or nothing. Hence it sometimes happens that Pears are abundant and Apples sparse in the same garden. It is fair to assume, however, that the later the flowering the better the chance of favourable weather prevailing at the time, and that may be one reason why Apples over a series of years are more certain in crops than are Pears, while late flowering Apples are perhaps, as a rule, the more reliable; but there are exceptions.

Some most interesting and painstaking experiments, conducted by Mr. William Paul, were recorded in the *Journal of Horticulture* of March 6th of the present year. He there states the period of flowering of a number of varieties of Apples, and indicates the size, shape, and texture of the petals of each. Perhaps most persons would consider the good bearing varieties in that list, which flower after the middle of May, somewhat more reliable than those which expand early in the month. Still, amongst these we find Duchess of Oldenburg and Keswick Codlin, which are as trustworthy as most; also Tower of Glamis. In the second week we find among others Lord Suffield, Devonshire Quarrenden, and Manks Codlin, which usually bear well; but with one exception those named have cupped flowers, the petals curving over the organs of fructification and affording them slight protection, though it may not be without favourable influence. Still, perhaps the later flowering sorts are the more certain in bearing, though it is noticeable that the half dozen that opened after the 21st of the month (May) have expanded flowers. Possibly gardeners and amateurs who are interested in fruit culture may take notes on the flowering and fruiting of trees during the season on the lines adopted by Mr. Paul.

The position which trees occupy is an important factor in the production of fruit. Given equally fertile soil, and the same varieties, grown in a damp valley where fogs appear early and continue long; also on a breezy hillside—the blossoms will be destroyed by frost twice as frequently in the former as the latter position. Yet where there has been plenty of choice, fruit trees innumerable have been planted where they were the least likely to be productive. It is a pity that should be so, but it is a fact, and the penalty for such mistakes is the annoyance born of disappointment.

The promise of fruit this year, as indicated by the blossom, is necessarily variable, and we shall be glad to be favoured with the observations of our readers in different localities on the subject. In the Royal Horticultural Society's Gardens at Chiswick the prospect is not very cheering. There is plenty of Peach blossom, and so far it is safe; Pear blossom will be scant. A few of the trees are well studded with the buds just bursting, but many more are barren, and the majority have a very light sprinkling. There will not be half a crop of fruit even if the flowers set well. The Apple trees will not be "pictures of beauty" in May. Several contain sufficient buds for a crop, but the majority do not, and the fruit room will not be overcrowded in the autumn. The small bush Apple trees have been heavily laden during recent years, therefore require a season for recuperation, and some of them intend having one. Plum blossom is scant, and it is the same with many of the older trees in the adjoining market gardens, but young trees are well covered with flowers. Cherries are not usually productive at Chiswick, but there appears to be a fair promise of bush fruit.

On this subject we have received two communications. Mr. Iggulden writes from Somersetshire:—"The late severe frosts have left their mark upon the Apricots, and I am afraid the Peaches are not in such a happy state as they appear to be. There is abundance of blossom on the former where protected by coping and blinds, but in too many instances this is delusive, as the delicate organs of fructification so neatly enclosed in the buds were

killed. Cherries as usual are well furnished with buds, which were not forward enough to be injured. Plums are very thinly set with buds, but much of this scarcity is due to a plague of bullfinches, hundreds of which were killed in this district. Pears are exceptionally floriferous; in fact I wish there was much less bloom on the trees, and this stronger. No injury has accrued to it, and the Jargonelle will soon unfold its very fine showy trusses of flowers. Apples again are most abundantly clothed with fruit buds, never more so probably, and all being well there ought to be no scarcity of fruit next autumn and winter. Bullfinches have simply ruined the majority of unprotected Gooseberries, and Red Currants have not wholly escaped, while every Medlar bud appears to have been taken by these pests."

From Hertfordshire comes this report:—"Gardening prospects, like farming prospects, to which they are closely related, are very uncertain of realisation, but still it is pleasant to have them good. Taking the Apple first, as of primary importance, I may safely say that we shall have plenty of blossom, even more than last year, though we had a great deal then. I do not think the Apple buds too forward, but they are distinctly swelling, amongst them such excellent sorts as Duchess of Oldenburg, Warner's King, Cox's Orange Pippin, Lord Derby, Northern Greening, Hawthornden, Ecklinville Seedling, Devonshire Quarrenden, Keswick Codlin, Lord Suffield, and Mère de Ménage, which is usually shy here. Plums rank next in importance, and I think, as far as profit is concerned, they are more remunerative than the Apple. We have a capital collection, and generally succeed in securing heavy crops. The Victorias are very full again; Black Diamond promises as well as ever, but this Plum is rather erratic in its temperament. I think it requires a lighter soil than the generality of Plums. Here (Herts) it is one of the most profitable grown; the individual fruits are as large as duck's eggs, and the crops enormous, but I am familiar with a large quantity of really good trees about four miles from me that never yield a crop, while the Victoria flourishes well. Pond's Seedling is also very good, but the fruit will not stand the wet. Oullins Golden, Green, and Rivers' Early Transparent Gages all promise splendidly. Early Prolific is very full. Magnum Bonum, Orleans, Coe's Golden Drop, and Cox's Emperor are all looking well. Pears are rather uncertain here, but this year we have a splendid show of bloom. The bullfinches have been very troublesome this season, particularly in one garden. A great living naturalist has said recently that these birds are Nature's own pruners. Such pretty little pieces of sentiment are picked up with your feet placed cosily in front of the fire, and a book about the pets in your hand. What a boon to the gardener! He has only to leave the trees alone, and allow the bullfinches to do the pruning. Whether the birds are Nature's pruners or not, I prefer to do my own pruning or thinning the buds, as the case may be. I have lost the whole of the buds of Louise Bonne de Jersey from some young trees. Williams' Bon Chrétien, Duchesse d'Angoulême, Pitmaston Duchess, Beurré d'Amanlis, and Easter Beurré are looking exceptionally well. Peach and Nectarine trees are covered with expanding blossom. I have only just had the trees nailed to the wall. Hale's Early Peach was in full bloom, but I do not mind knocking some buds off when nailing, provided I can retard the opening buds, for I consider every day later is a day safer. Gooseberry, Raspberry, and Currant bushes I cannot say much about, but the leaves are breaking freely on the Gooseberry bushes. I have only one Apricot tree, and that does not pay for the space occupied. As I said before, these prospects are not much to go by, for we have much to encounter and contend with before we see any signs of the fruit crop of 1890."

THE PRUNING KNIFE.

THERE is no necessity for giving a definition or the history of this useful instrument, but as there are two sorts in the market, the good and the bad, the young gardener should take pains to

secure the former, if possible, and keep it in good working order. There is more in this than at first appears, for a young gardener's success may depend very largely upon the possession of a good knife, the condition he keeps it in, and his skill in using it. We might give numerous illustrations, but will confine ourselves to one or two which will suffice to show the advantage of possessing a sharp knife and the evils which may arise from the use of a dull cutting one. Let us suppose our young gardener sent, at this season of the year, to re-stake some young Melon plants. He begins sawing away at the old ties with his bad cutting knife, and in doing so the matting has cut into the tender stem perhaps sufficient to completely ruin a plant that has taken two months of anxious care and stratagem to raise it, or it may be the bruise is slight and goes unnoticed until the fruit arrives at the last swelling stage, then all at once the plant gives out. Such misfortunes may occur from canker alone, but the bruise given to the tender stem when trying to cut the matting with the blunt knife may have been at least the exciting, if not the sole cause of the evil. Then who shall estimate the number of cuttings ruined every year through being made with a blunt knife, and the consequent loss and disappointment? It is no small matter for a gardener to possess a bad cutting knife, whether the fault lies in the knife or its possessor, and the young aspirant should spare no pains to remedy the evil. Great and important matters are always sufficiently exciting in themselves to secure our continuous attention, but the apparently small matters are apt to become the "weak links in the chain," and since our true worth is proportionate to the strength of our weakness, these are the points which demand our greatest attention if we wish to excel in gardening or anything else.

But the man who possesses a good knife and has mastered its uses in every detail is of no mean order, whatever may be his "social position," for his knowledge of plants individually and collectively is great. This man's theoretical studies and practical applications have been long and arduous, and we can only attain to his position by a like process.

But even such men as these are not always able to act up to the standard of their knowledge, since the plants they would with advantage operate upon are not their own, and since the owners of these plants from want of practical knowledge are often unable to comprehend the gardener's arguments for pruning certain plants, he has to be content to keep his knife in his pocket and from year to year have unsatisfactory plants under his care. Circumstances such as these are calculated to diminish a gardener's zeal and to lead to general carelessness, since it more or less ties his hands and stifles his ambition. There are times, however, when the gardener, by examples and explanations, will gain confidence, and in most cases it will only require steady application and time to gain permission to use his knife to his heart's content.

Now his time has come, and his promises to those lanky, bare-stemmed Camellias, Orange trees, and other plants—to those sickly wiry-looking Azaleas that have been carrying heavy crops of flowers the past ten years, will soon take practical shape, and as soon as he starts his vinery, or has plenty of heat and moisture at command, these plants will bear a close resemblance to an old Apple tree prepared for grafting. Some would be dubious about these smooth-stemmed Camellias ever growing again, but an inspection in three months' time may tend to caution them against limiting the powers of Nature. With a due regard to atmospheric and root conditions, it is wonderful what a judicious use of the knife will do for them and other hardwooded plants in two years. From objects to be shunned they will have become thick well-shaped bushes, and a credit to all concerned. The intelligent use of the knife has saved the life of many a plant, and hundreds have died through the want of it.

The gardener who has mastered the use of the knife will also know not only when to use it but when to avoid using it, and how to prevent having to use it. There are few good things in this world but what may be abused, and the pruning knife forms no exception, and so it happens that many people continue pruning their trees, especially fruit trees, without having any clear idea why they do it or how it should be done. They get very few flowers or very little fruit, as the case may be; but then that is not the fault of the pruning, for how are trees to be kept within bounds except by cutting off all the summer shoots? besides, their fathers pruned in the same way. Happily, instances of this sort are becoming less every year, and the majority are realising the fact that the roots must either be restricted or frequently pruned in all cases of formal training, especially if that training does not allow of the full development of the tree. To allow a thicket of shoots to grow on a fruit tree simply to be cut off at the end of the summer is not only a waste of time and material, but a strong invitation to sterility, disease, and death.

The above remarks, of course, apply principally to fruit trees, but there are certain Roses and other flowering plants that must

receive a severe pruning yearly to secure a strong growth and abundance of flowers. The chief business of the pruner will be to ascertain when the pruning must be done, whether before or after the flowering period, as ignorance on this point may lead to the loss of a whole season's crop and other serious consequences. I was called in last summer by an amateur to give my advice respecting a *Maréchal Niel* Rose that had become very unsatisfactory. He had planted it in a well prepared border in his greenhouse five years ago, and the first year it completely filled his house with long healthy shoots, and the following spring it rewarded him with a splendid crop of good blooms. This stroke of success naturally heightened his ambition, and as he had made a good round sum of his blooms, he decided it would pay him to give up his greenhouse entirely to them. His house had already become crowded with shoots, and he saw that something must be done to give them more room, and not knowing how to proceed he sought the advice of a florist, who told him that "he must never, on any account, prune a *Maréchal Niel* Rose, or it would never flower." The amateur, believing this statement, and determined not to be defeated, removed the gable end of his house and added a new length equal to the first, with the intention of covering its roof with the Rose shoots. In a paper like this Journal it is scarcely necessary to say that the man was sadly disappointed, and too late he discovered that he had been "sold." For the last two years the plant had only shown a few yellow sickly buds that fell off without opening. I told him how we managed ours, and advised him to do likewise—namely, to select the best main branch, and carry it horizontally along the bottom of his house, and from this branch, at about 15 inches apart, to train strong shoots to the top of the house, and to be very careful to keep them tied straight up so as to prevent any of the eyes breaking. In the spring, before starting the plants, these shoots are taken from the vertical position and retied in an oblique manner, so as to induce all the eyes to break the entire length of the shoot. When the shoots have done flowering they are boldly cut back to one or two eyes at the main horizontal branch. The above is a case in point of loss and disappointment through not knowing how and when to use the knife.

Before commencing to prune any plant let us have a clear idea of what is the object in view. If we are pruning for shape, let us endeavour to picture how the plant will appear when its growth is finished, and then cut accordingly. If flowers are our aim, then we should know whether the plant flowers best on strong, moderate, or weak shoots; also we must know whether it flowers on the current or previous year's growth; and finally, if we are pruning to obtain fruit, we must take not only the branch but the root into consideration, and even individual varieties of the same fruit may require different pruning. We cannot expect to exhaust this important subject in a short paper like this, but enough has been written to show the necessity and advantage of a good general knowledge of plants and trees in order to use the knife with credit and profit. To secure this desirable end, young gardeners would be well repaid by mastering at least the elements of vegetable physiology and collateral subjects, as it would save them from many doubts and mistakes, and supply them with the "why" and "wherefore" certain work is done.—J. H. W.

CULTURE OF SEAKALE—HOW TO PROCURE A SUPPLY FROM SIX TO SEVEN MONTHS.

WE often have useful articles written by practical gardeners in the Journal about growing and forcing this winter vegetable, but there usually seems to be something wanting to complete the instructions for growing it to the best advantage for ensuring the longest succession.

In referring only to the beginning of this year I find three notices of Seakale-forcing—the first on January 2nd, page 3, by Mr. G. Hilton, recommending forcing it in champagne boxes on the top of boilers. I think any place is preferable to that where there is heat to about 56° or 60°, as under stages or in Mushroom houses. Many other places could be found equally as well suited, including unused cellars, and much more useful than the above is a large bacon box. Before using the bacon boxes I fit four pieces of wood on the sides about 4 inches from the top (the inside) of the box, and after the crowns are planted firm and watered and left a day or two to dry, the space of 4 inches or so at the top of the box is filled with dry grass, hay, or dry litter, which keeps it airtight and prevents the Seakale turning green or a bad colour. The boxes are sound and strong, and can be had for about 1s. deep enough for about 18 inches of heating materials such as hot manure, short horse droppings, leaves, or cocoanut fibre. It helps to keep the Seakale moist, for if placed on a damp base it will only need one good watering when first planted. If

the heat is from 55° to 65°, the Seakale will be fit for cutting for table in six weeks, and later on in four weeks. In this Journal on January 30th, page 89, was an article by Mr. A. Thoburn, which was very good as far as it went, and applicable when the weather is favourable outside; but how would it be when we have from 8° to 20° of frost? A further supply could be had from February to the end of March, or the second week in April if a backward spring. It may also be forced in the old-fashioned way with proper Seakale pots and leaves or manure, but care should be taken not to have the manure hot enough to scald the crowns, as described by Mr. A. Thoburn.

From April to the end of May cover the crowns with shingly pebbles or fine gravel, and cover the hillocks with manure. These, if the crowns are strong, give the finest Kale of the season. After that time the green seedy shoots of the plants, if cut just before they open when about 1 foot high, and if the weather has been warm and showery, are a good substitute for Asparagus; but if the weather has been cold and dry, these will not be worth the trouble of cutting on account of their bitter taste when cooked. Respecting Seakale being bitter I always think that it is either due to its being kept in too dry an atmosphere, or its not growing fast enough. I have never heard any complaints when it is grown under favourable conditions.

Those who have not grown the "Lily White" variety, as it is mostly called, should start at once, as I find that a great improvement on the old purple-tipped both in appearance and quality. This kind if forced well comes out quite white. The seed is offered in nearly every catalogue. A pint or quart will cover a large space of ground if sown carefully in rows about 18 inches apart, and dropping two or three seeds every 12 inches you can make sure of one good plant in each space if the seed is good. With attention during the season to hoeing, there will be some strong crowns for forcing. These if wanted for November should be taken up about the second or third week in September or the beginning of October, and laid in some rather dry soil for three or four weeks to allow the leaves to part freely from the crowns before planting in the boxes for forcing. Before these are placed in they should have the roots shortened, and all the strongest saved, and sets made for next year's supply. These should be made at the same time as cut off, as it is often very difficult to tell the top from the bottom if left till afterwards. I find a good way to distinguish the sets is to cut the top end square and the bottom on the slant, and at the same time to reject all damaged or worm or grub-eaten parts, and save nothing but clean pieces for planting. Lay these in shallow boxes of dry sand till spring, and if kept moist enough to prevent their shrivelling they will be found to be callused over by planting time. Plant in rows 12 to 18 inches apart, and from 6 to 12 inches between the sets according to their size. The earliest forced crowns if examined carefully and treated the same way as for the sets make good plants for forcing next year.

I find Seakale will not succeed if planted on the same ground every year, and if fresh ground is well trenched the plants will well repay for the extra care and trouble. A slight sprinkling of salt once or twice during the season will greatly assist the growth, as well as afford a check to weeds.—G. E., near Warwick.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 259.)

LARGE CULTURE OR TREES ON CRAB STOCKS.

Espaliers.—Early: Royal Codlin. Midseason: Yorkshire Beauty, Alfriston, Beauty of Kent, Emperor Alexander, Golden Noble, Warner's King, Lord Derby, Hornead Pearmain, Tower of Glamis, Melrose, The Queen, and Sandringham must not be excluded. Late: Bramley's Seedling, Annie Elizabeth, Rymer, Habledon Deux Ans.

For Walls or Fences.—Beauty of Kent, Emperor Alexander, Hollandbury, Peasgood's Nonesuch, Castle Major, Lord Derby, Yorkshire Beauty, Melrose, Warner's King, Lane's Prince Albert, The Queen, Sandringham. For low walls or fences they must be grown on Paradise stocks. Grown on east to south and westerly aspects these varieties will afford magnificent fruit, and will be the talk of the kitchen if allowed to go there for any purpose beyond baking, and the marvel of the street if they make their appearance in fruiterers' shop windows.

Standards.—Early: Keswick Codlin, Cellini, Ecklinville Seedling. Midseason: Alfriston, Beauty of Kent (does not succeed on heavy wet soils), Castle Major (similar remarks apply to this as the preceding), Emperor Alexander, Golden Noble, Nelson Codlin, Yorkshire Beauty, Lord Derby, Tower of Glamis, Bedfordshire Poundling, Yorkshire Greening. Loddington may be put in the

same category with Blenheim Pippin—viz., it does not bear when young, but after it becomes aged—i.e., twelve to fifteen years old it is one of the most reliable and best. Late: Annie Elizabeth, Bramley's Seedling, Dumelow's Seedling, Rymer, Galloway Pippin, Gooseberry Apple, Hambleton Deux Ans, Hanwell Souring, Minchull Crab, Northern Greening.

Perhaps the greatest difficulty that besets the grower is the extensive number of varieties, many of which are of first class quality for their respective purpose, and the difficulty is further increased by the diversity of opinion respecting them. The most extensive growers and experienced pomologists find it no easy matter to reduce the number of first class Apples. All making a study of Apples form prejudices, even against their better judgment, which had become fixed by heredity and environment, so that they cannot through prepossession part with favourites, which, surpassing their compeers in some esteemed excellence, it may be of quality without any other characteristic of value are not befitting the times. Some for instance recommend Hawthornden as a kitchen and Ribston Pippin as a dessert variety of the highest excellence, which no one questions, but the fact respecting them is one may ride a horse to death before we find a healthy and profitable tree of either. Gems they may be of the first water when perfect, but the majority of investors in Apples look more at their easy term of purchase than at their high quality. It suffices for the masses if an Apple is of general usefulness—a combination of good appearance, quality, and practical utility. The grower, too, must cast aside his prepossessions and prejudices. What served our forefathers will not serve the present generation. There is a want—a market—and that must be supplied by the home grower, or it will be supplied by the enterprise and energy of the growers of other lands. It is no use blinking the fact—viz., our produce is not the best and cheapest put in the market. Decrying imported Apples will never make better grow in English orchards. What is required is effort guided by common judgment. The cultivator must expand his ideas of manufacture, get all the beauty, all the quality, and all the utility of the at one time costly article into the cheap. To effect this prepossessions and prejudices must in all matters outside be laid aside. Hardness of fruit, freedom and constancy of bearing will largely influence growers in making selections, to which there is nothing more to add only that the fruit be such as to command the markets. This will be best secured, not by an infinity of variety, but by growing few varieties in quantity, a number of trees of the most profitable kinds.

In making selection of what I consider the most profitable sorts it is not expected that they may have proved such in all localities; but if those taking exception to any will only name others they have found surpassing them in certainty, production, and profitability of crop we may form an estimate of their suitability for general culture. Six varieties for dessert and kitchen use—Lady Sudeley, King of the Pippins, Harvey Apple (Dr. Harvey, Golden Noble, Waltham Abbey Seedling), Rhode Island Greening, King of Tomkins County, Dutch Mignonne. To those add Reinette de Canada in warm, and Lemon Pippin in ordinary situations.

Six other varieties for dessert and kitchen use.—Harvey's Wiltshire Defiance, Baxter's Pearmain, Annie Elizabeth, Royal or Herefordshire Pearmain, Hornmead Pearmain, London Pippin. Extra.—Hambleton Deux Ans.

Blenheim Pippin from its shy bearing in a young state is omitted. It may be planted by those that can wait with complacency its coming of age (twenty-one years), and then it is not a great or certain cropper. Probably a substitute may be found in Cobham or Golden Ducat, an early and good bearer, with quality equal, if not surpassing, Blenheim Pippin, and a better keeper.

Six varieties for dessert and kitchen use requiring good soil and sheltered or warm situations.—Washington, American Mother, Melon Apple, Northern Spy, Reinette de Canada, and Calville Maligre. Extra.—Boston Russet.

Six varieties for dessert.—Irish Peach, Cobham or Golden Ducat, Cox's Orange Pippin, Cockle Pippin, Court Pendu Plat, Allen's Everlasting. Extra.—Stamford Pippin.

Six other varieties for dessert.—Kerry Pippin, Fearn's Pippin, Claygate Pearmain, Adam's Pearmain, Golden Reinette, Scarlet Nonpareil. Extra.—Golden Russet.

Six varieties for appearance and usefulness.—Yorkshire Beauty, Lord Derby, Dr. Hogg, The Queen, Sandringham, Lane's Prince Albert. Extra.—Emperor Alexander.

Twelve varieties for kitchen.—Keswick Codlin, Lord Suffield, Cellini, Alfriston, Beauty of Kent, Nelson Codlin, Galloway Pippin, Round Winter Nonesuch, Flanders Pippin, Bramley's Seedling, Dumelow's Seedling, and Northern Greening. Extra.—Mère de Ménage, Stone or Loddington.

Twelve other varieties for kitchen.—Potts's Seedling, Ecklinville Seedling, Bedfordshire Foundling, Betty Geeson, Grenadier, Tower of Glamis, Melrose, Yorkshire Greening, Murfitt's Seedling,

Rymer or Caldwell, Gooseberry Apple, Hanwell's Souring, Minchull Crab. Extra.—Warner's King, Niton House (a large, later form of Stirling Castle).

The selection comprises seventy varieties, which may be considered far too many, but if the first six of the dessert and kitchen, dessert, appearance and usefulness, and first twelve of the kitchen varieties with their respective extras are taken, the number is reduced to thirty-five, to which can be added Blenheim Pippin and New or Improved Bess Pool in the case of those that can afford to wait. Thirty-six or seven may be considered too many, but taking into account that a supply is required of useable fruit for not less than nine months of the year, it is matter of extreme difficulty to limit the kinds so as to make sure of an unbroken succession. The varieties differ in time and duration, and constitution or adaptability for location, being influenced to a considerable extent thereby, so that it becomes necessary to provide for contingencies, and in selecting provide accordingly.

Twenty-four varieties.—Keswick Codlin, Lady Sudeley, Lord Derby, King of the Pippins, Yorkshire Beauty, Harvey Apple (Golden Noble), Grenadier, Cox's Orange Pippin, Alfriston, Fearn's Pippin, The Queen, Baxter's Pearmain, Sandringham, Adam's Pearmain, Beauty of Kent, Flanders Pippin, Dr. Hogg, Lane's Prince Albert, Dumelow's Seedling, Round Winter Nonesuch, Bramley's Seedling, Annie Elizabeth, Dutch Mignonne, and Northern Greening. Amongst those will be found fruit suited to all tastes, for which, however, there is no accounting, as difference seems to follow variety, therefore add Rhode Island Greening and King of Tomkins County.

Twelve varieties.—Lady Sudeley, King of the Pippins, Yorkshire Beauty, Baxter's Pearmain, Cox's Orange Pippin, Grenadier, Sandringham, Flanders Pippin, Dumelow's Seedling, Dr. Hogg, King of Tomkins County, and Northern Greening, with Bramley's Seedling. The last may be substituted for Dumelow's Seedling where it cankers, and have a place in all selections of culinary Apples.

Six varieties.—Lady Sudeley, Harvey Apple, Sandringham, Bramley Seedling, Dr. Hogg, and King of Tomkins County.

Four varieties: Lady Sudeley, Harvey Apple, Dr. Hogg, King of Tomkins County.

Three varieties: Lady Sudeley (August to September), Harvey Apple (October to December), Dr. Hogg (November to April).

To the six, four, and three add Cox's Orange Pippin, and where the demand is greater for a dessert than culinary variety replace Harvey Apple by King of the Pippins. Cox's Orange Pippin and Reinette de Canada are perhaps not excelled, but they require good soil and warm situation.

Exception may be taken to Lady Sudeley, King of Tomkins County, Dr. Hogg, The Queen, Sandringham, and Lane's Prince Albert as not sufficiently proven, but if healthy growth, early and full cropping go for anything it shows their adaptation for dwarf and standard culture. Looking askance at varieties of demonstrated merit only causes the "plums" of the markets to fall into the lap of importers. Clinging to antiquated varieties causes the something that was going to be done to be put off indefinitely; indeed, we cannot find heart to cast aside the "baby" dessert kinds and the "crabs" of the culinary sorts, yet we complain of those investing in the full grown examples of other lands. Surely those bringing bullion to the mint have the first right to the coinage, therefore let us plant Lady Sudeley, Dr. Hogg, Lane's Prince Albert, The Queen, Sandringham, King of Tomkins County, with Alfriston, Yorkshire Beauty, Lord Derby, Golden Noble, Beauty of Kent, Wiltshire Defiance, having a line in the centre of Cox's Orange Pippin and Reinette de Canada alternately, and to keep guard around King of the Pippins, Bramley's Seedling, and Northern Greening. Then we may leave Blenheim Pippin and Bess Pool as a legacy to the times—the generation yet to come.—G. ABBEY.

(To be continued.)

GARDEN NOTES IN 1889.

GLADIOLI.

ALTHOUGH I have occasionally alluded to the Gladiolus during the past year, and especially in my report on those at the Crystal Palace Show in September, I have not entered into any details as I have usually done with regard to my own culture—notes which I find interest a good many who, like myself, can grow only a selection, my beds not containing more than about 500 corms, and I am so narrowed by space that I can only change my ground once in two years. I have other parts in my garden where they might possibly grow, but the soil is not so suitable as that is where I grow them and have grown them for some years; but although I can only give them this change, yet by cropping the ground with vegetables I think that a sufficient change is afforded them. Thus the beds where I am going to place them this year had Onions and

Potatoes last year. They were thoroughly well cultivated, and the ground well worked, so that it was in a very good state of preparation. The beds had been well dug in the autumn, and the manure dug in. It was more than once forked over during the winter, and thus thoroughly well exposed to the influence of frost. The beds as usual were 4 feet in width, thus allowing for four rows in each bed.

Previous to planting I have an overhauling of my labels, for although I enter the roots in a garden book according as they are run on the beds, and thus by a species of double entry to provide against mistakes, I have a very great objection to getting names misplaced, and although I am not likely to have anyone dropping down upon me, saying "That is all wrong," yet I am quite as particular as if such an event might take place at any time; for indeed, as far as the knowledge of anyone who enters my garden is concerned, I might call them anything I liked. When about to plant I take the corms of any one variety, examine them carefully, and where their size admits of it, I cut them in halves, leaving an eye to each half. This is a somewhat tedious process, as it involves (with me) the stripping off the outer coat of the corm, in order to ascertain where the eyes are, or else one might cut right through them. This practice commends itself to me more and more. I find that smaller corms than I used to think suitable for the operation may be so treated. I like it because it at once doubles the stock and secures two blooms instead of one. I this year did what I have long since abandoned, left a few of my corms in paper bags, and, as a result, I found that several of them had started, and when they had done so I found one eye dormant, and had the corm been planted whole, I believe that first shoot would have given the other but little chance. I cut it in two, and the dormant eye is now beginning to assert itself. I believe that smaller corms than one has been in the habit of considering suitable for the purpose may be cut, but those who have not adopted this practice will be perhaps content with dividing only the large ones.

The corms and labels being all ready I draw a drill the entire length of the bed, and about 6 inches in depth, so that when covered-in the top of the corm is about 4 inches from the surface. I used at one time to use sand largely in planting, placing some round each corm, but I have given this up. We are in the habit in this neighbourhood of preparing wood for charcoal, to be used in the Hop oasts for drying the Hops. The wood is placed in lumps and surrounded with sand, and then burned. As only the large lumps are used for the purpose of drying there is always a quantity of fine powdered charcoal mixed with burnt sand left, and I have used this to surround the corms with, and find it very useful. When the corms of a certain quantity and variety are planted the label (I use one of about 10 inches) is placed, and then the next variety is planted. When the whole row is finished the second drill is drawn, the earth taken out by the hoe falling over the first one. When the whole bed is planted the earth is levelled down and then left. I did not in any way deviate from this, my usual practice, last year. I had a good bloom, but, as I have already said, not so good as in some previous years. We had not any spring frosts in May to injure, as I believe they sometimes do, the young shoots; but we had a very cold July and August, and I cannot but think the plants received a check, then many of the flowering stems came crooked, thus rendering the spikes utterly unfit for exhibition. I do not think that I shall trouble myself much about protecting blooms for this purpose. I did so last season, and I do not believe I exhibited more than one or two of those thus protected, yet there can be no doubt it is the best way to secure pure and untinted blooms, especially of the white varieties.

I had a difficult time in harvesting the corms. They like a dry warm autumn, and this is the reason why they do so well at Fontainebleau, and I may say at Cambridge; but when I say that we had nearly 8 inches of rain in October it may be well imagined that harvesting was a matter of some difficulty, the corms get so saturated with moisture that they look large and plump, but it is found when stored that they shrivel very much. I found too, that there was the same sort of season at Fontainebleau, and that Messrs. Souillard & Brunelet state that their harvesting was a very long and unpleasant one owing to the continuous rains.

I received from Mr. Allen of New York a dozen roots of American seedlings, of which he appeared to think very highly, and for the opportunity of growing them I was much obliged; but I am sorry to say my estimate of them did not accord with his, and I was not disposed to keep any of them as named sorts, and so they were all thrown into mixture. I had, as usual, some of the newer French varieties, but not those of 1888, and there are some of them that I find of very excellent quality. We want now flowers that will open well together, that show a good front (no blooms sideways), and now having obtained these size is sought for, and blooms are now to be seen, such as were never dreamed of years ago. The best of the French flowers of 1887 are:—

Arrière Garde.—Large flowers, rose salmon flamed with violet, creamy yellow blotches.

Aurore de Feu.—Clear rose, passing to scarlet, with golden yellow centre, fresh brilliant colour.

Docteur Bailly.—Very large open flowers, brilliant fiery red, small carmine blotches on white ground; a very striking flower.

Erigone.—Magnificent flowers, white ground, largely striped with rosy carmine, large rich carmine blotches.

Formosa.—A very beautiful early flowering variety, soft satiny rose slightly striped with carmine red.

Panama.—Very large flower of great breadth, deep carmine rose flushed with scarlet, and slightly edged with slate colour.

Picador.—Brilliant scarlet flower with pure white blotches.

Mr. Burrell of Cambridge has raised some fine varieties. Amongst them was *Avalanche*, a long spike of white flowers opening well together; *The Mikado*, a very brilliant scarlet flower; *Cygnets*, a creamy white flower, very pretty; *Mrs. Lendull*, a striped flower somewhat in the way of *Dobbie*, only much finer. All these I have grown. Not only are they good in themselves, but they are, I believe, the forerunners of some more fine flowers.

In reference to planting, I would advise all who wish to grow Gladioli well to take advantage of fine weather, and only plant when the ground is in a suitable condition. More harm than good is done when the corms are put into close and "stodgy" soil.—D., Deal.

NARCISSUS COUNTESS OF ANNESLEY.

FROM time to time during the past six weeks Mr. Baylor Hartland of Cork has sent us flowers of this variety. The earlier examples were

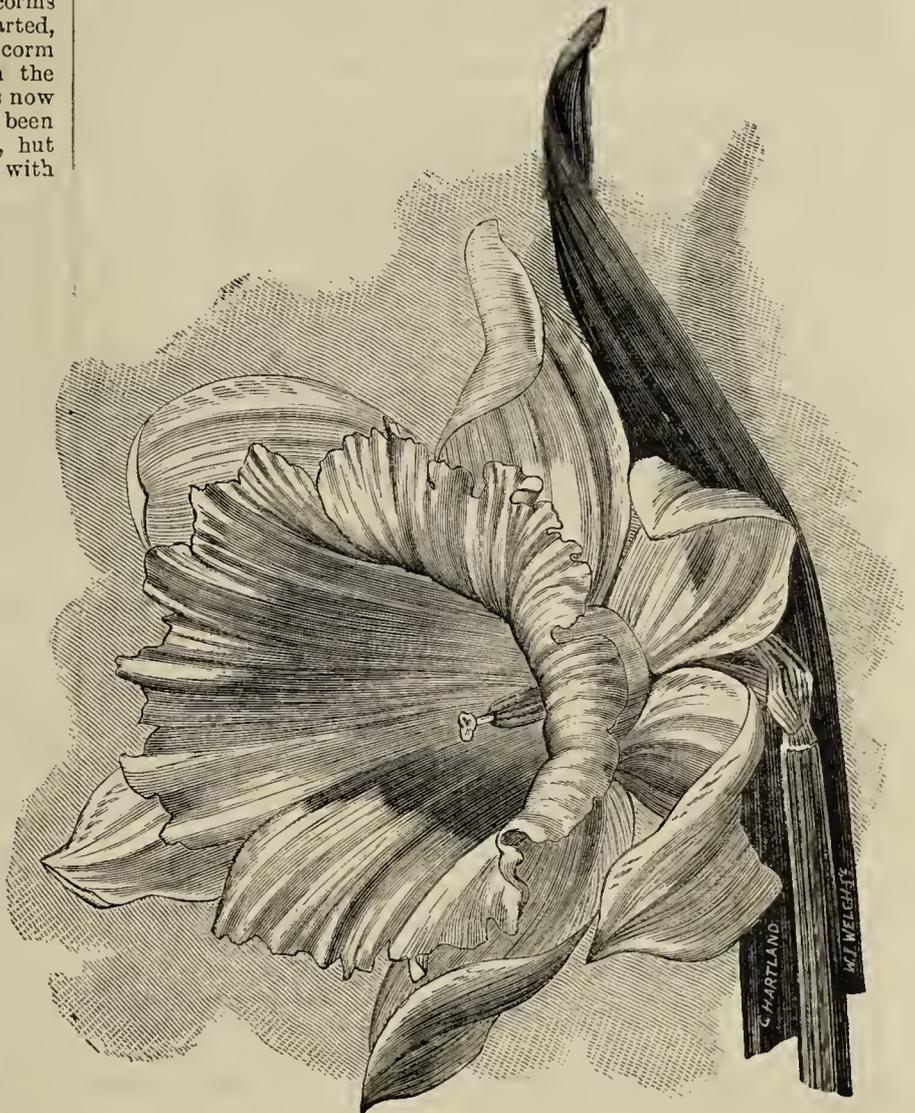


FIG. 35.—NARCISSUS COUNTESS OF ANNESLEY.

comparatively small, perhaps the produce of small bulbs, but the later flowers were quite as large as the figure supplied by Mr. Hartland, and we think more attractive than there represented. The trumpet is of a pure glossy yellow, and the perianth segments sulphur. The large flowers had a massive and hooded appearance, and were pleasantly fragrant. The variety appears to have been discovered in the garden of Lord Annesley at Castlewella. Unfortunately, Mr. Hartland says the stock has got a little mixed, but, properly "rogued," he does not think there is a more vigorous or better market flower in cultivation. The variety appears to be spreading, as we find it was represented at the great quinquennial show of bulbous plants at Haarlem.

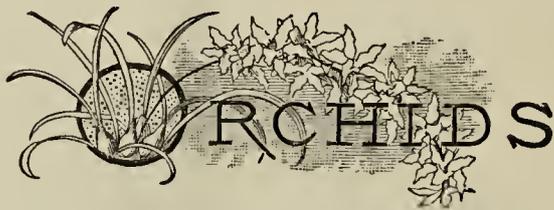
CURIOUS SEEDS.

I SEND you a small box containing a few seeds of a *Euphorbia* which we received last July from one of our Mexican correspondents. If you will keep them a moment in your hand you will notice that

they are alive, and on placing them on a flat surface the seeds will hop or leap in a very curious manner. There is not the least trace of any aperture in the seeds, but when cutting one it is found to contain a white maggot very vivacious, which will at once shut itself up again. They are called in Spanish the Devil's seeds.

An insect punctures the young ovary, deposits its eggs, and then the microscopical larvæ enter easily. The tissues close again, and soon shut up the small gallery without the slightest external appearance. The larva develops itself in the seed, and when mature the insect comes out. When fully transformed it deposits eggs again on the young ovaries. I cut several seeds during the winter, and always found the insects well alive, leaping and ready to obstruct the opening at once. The seeds jumped violently when we received them last summer, but at present they seem to have lost a little of their strength. It appears that the same curiosity has been noticed, although rarely, with the Tamarindus. I add a seed with a hole, from which the larva has escaped, as also the larva itself. Is not this a wonderful seed, and did you ever see its like?—E. SCHAETTEL, *Vilmorin-Andrieux & Cie, Quai de la Mégisserie, Paris.*

[The seeds are somewhat triangular in shape, and not unlike wedges cut from large Peas. They went through the dancing performance very satisfactorily though not violently. We have only once before seen seeds of the same kind. They are decided curiosities.]



CATTLEYA TRIANÆ.

As these cease flowering remove them to the warmest end of the house, which should not be allowed to fall below 60° during the night, with a rise from 5° to 15° during the day. The stage upon which the plants are stood should be kept moist by damping amongst the pots frequently. If the pots or pans used are not of the ordinary type, but have numbers of holes round the sides, be careful not to get the compost too wet through syringing amongst them. A little more water will be needed at their roots, but on no account give too much. The supply must be carefully and gradually increased as the plants make roots and extend their growth. Water 10° warmer than the temperature of the house should be used when it is required either at their roots or over their foliage. The plants may with advantage be dewed with the syringe on the mornings of fine days. Air should be admitted during mild bright days, so that any moisture which lodges about the growths of the plants may be evaporated daily. Keep the ventilators closed when the air is cold, so that sharp currents are prevented reaching the plants.

TOP-DRESSING.

Plants that were potted last year may be top-dressed before they commence forming young roots. Sphagnum moss that has been used near the surface should be carefully picked and fresh supplied in a living state. It is wise to place this so that it can be readily removed annually. If the peat used was good none of it will need removal; a few lumps of fresh may be necessary to complete the work of top-dressing. These are often necessary as well as a few pieces of charcoal where the rhizome of the last growth is some distance from the compost.

POTTING.

Pots are decidedly the best for Cattleyas, although they do fairly well on blocks and in baskets suspended from the roof where stage room is limited. The pots to be used should be about one-third filled with drainage carefully arranged. The pots in which they are growing must be broken, because the roots cling tenaciously to the sides. The portions of pot should be carefully placed in the pots that are to be used for them. Some of these often rest upon the bottom of the pot, and in this case crocks must be carefully arranged amongst and about them until ample drainage has been placed in. Above these a few lumps of charcoal may be used, or better still, mixed in with lumps of good fibry peat about the size of an egg, until the remaining space in the pot has been filled. The surface should be completed with lumps of peat and living sphagnum alternately. The plants must be well elevated above the rim, and all decayed material removed from the old ball. If the material is sweet and in good condition it may be necessary only to remove the sphagnum moss. When the peat is good to commence with it lasts much longer for these plants than is the case with many Orchids. This is due to their requiring consider-

ably less water than many species. If the old material is decayed it should be removed, which with care may be done without injury to the roots to any serious extent. It must be remembered that if they are destroyed or damaged this season's growth will suffer. Plants that undergo this operation need the most careful attention in watering afterwards. If the compost becomes wet before active roots are working it will be found at the end of the season that the pseudo-bulbs have decreased materially in size, and the plants will have a yellow sickly hue.

BACK BREAKS.

Well-established plants may be induced to break back, or increase the number of their buds by cutting partially through the rhizome just in front of a plump dormant eye. Some care is needed not to cut too far through the rhizome, and thus stop supplies for the support of a portion of the plant. It may happen that the portion behind where the rhizome has been cut may have no active roots. Once a new growth has been made and a good quantity of roots, no harm is done in cutting the rhizome completely through. By this process it is often possible to increase the number of leads on a plant from one to three or four. As a rule these dormant eyes do not make strong flowering pseudo-bulbs the first season, but if the plants are healthy and well established they will often make strong growth the first season and flower.

SHADING ODONTOGLOSSUMS.

If the blinds have not been arranged on the roof of the structures in which these plants are grown, no time should be lost in fixing them. A little shade will now be necessary to screen the plants from bright sunshine, but on no account overshadow them at this early period of the season. Blinds should only be used on the side where the sun strikes with force from 11 A.M. to 2 P.M. It will not be necessary to draw the blinds down earlier, and the sun after 2 will do no harm. The supply of moisture in the atmosphere may be increased, but be careful not to saturate it. A low temperature and too much moisture will cause the leaves of Masdevallias to become spotted. Less artificial heat will be needed, but it should not be dispensed with altogether. The temperature may often fall too low at night. When there is every appearance of a fine day, the pipe valves may be closed in the morning.—ORCHID GROWER.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

LECTURE AT ELLESMERE.

UNDER the auspices of the Ellesmere Horticultural Society (Salop), the above Association made arrangements for a lecture by Mr. John Wright on "Fruit Culture in Britain," and a meeting to be held in the Town Hall, Ellesmere, on Saturday, March 22nd. As briefly noted last week there was a large attendance of the leading agriculturists in the district, Brownlow R. C. Tower, Hon. Sec. of the local Society, presiding. The following abstract of a report appearing in the *Salopian and Montgomeryshire Post*, March 29th, gives an outline of the business and substance of the lecture.

The CHAIRMAN, who was most cordially received, in opening the meeting said that at a meeting of the Ellesmere Floral and Horticultural Society held not long ago, it was decided to take steps for the encouragement of and improvement in the culture of fruit in the district which the Society occupied, and he was requested to write to the British Fruit Growers' Association and ask them if they could kindly send down a lecturer or lecturers to address a meeting in Ellesmere as soon as possible. The Association very kindly consented to oblige them, and they had sent down three able representatives of the Association. (Applause.) They had Mr. Wright, who had written a very excellent book called "Profitable Fruit Growing." He called it a book, but it was really a prize essay, an essay which won the gold medal presented by the Lord Mayor of London. Then they had Mr. Bunyard of Maidstone, and Mr. Baillie of Chester. The subject of fruit growing was one which he thought would interest them all, especially as their neighbourhood was better adapted for the growth of fruit than many others in the country. The growth of fruit in that district had declined within the last half century very considerably. They very seldom saw an orchard round about properly taken care of, or old trees removed and fresh trees planted, and now was the time when they had to turn their attention to every possible method by which a little money could be made. They were favoured with a good district, and it seemed a pity that they should not try to make the best use of what was given to them. (Hear, hear, and applause.) There were many small holdings and cottage gardens which if they were better planted with fruit trees might be vastly improved, and become a source of income to the people and wealth to the country. There were many millions of bushels of fruit imported into this country, and many thousands of pounds spent on imported fruit, and a great deal of it might be grown by ourselves. It was with the object of stirring up the district that the Ellesmere Floral and Horticultural Society had arranged for the lecture to-night, in the hope that it might be the means of giving an impetus again to fruit growing. (Hear, hear, and applause.)

MR. WRIGHT commenced his lecture by referring to the differing views that were entertained on the subject of fruit growing—the optimists, he said, regarding it as only another name for fortune-making, while the pessimists described it as all fudge, from which nothing could be gained. He thought the truth on this and other matters was to be found somewhere between extremities of assertion. He dealt somewhat trenchantly with persons who proclaimed their incapacity as cultivators by preaching in newspapers the doctrine of fabulous profits for all who would plant certain trees, and reminded his hearers that it was very necessary to beware of quacks. He directed attention to the action of the Royal Horticultural Society, the Fruiterers' Company, and the British Fruit Growers' Association in procuring and disseminating information with the object of increasing and improving the fruit supplies of the kingdom as altogether more reliable than the preaching of popularity-hunting erudisers. He pointed out the unwisdom of trusting to any one kind of fruit alone, such as Apples or Pears, for producing profitable crops yearly, and adduced instances showing that losses had been incurred by such ventures, especially when a tree each of a great number of varieties had been planted. He strongly advocated a directly opposite course—of planting many trees of a few of the best varieties, not omitting a due proportion of the more certain bearing small or bush fruits; and said that under the combination system he had never known a total failure, but on the contrary, with a good choice of sorts, good soil, and good management a fair return would accrue to cultivators and much better than they could obtain from farm crops. He would not, however, advise inexperienced persons to invest all their money in fruit growing, and thought farmers should only regard it as an adjunct to other crops. He should like to see good collections of fruit well grown around the stately homes of England, both for supplying those homes with the rarest and choicest samples as well as for educational purposes, in showing the tenantry the varieties that would be the most remunerative to them.

Several examples of land being increased in value by fruit culture were given, and of the consequent higher rents obtained on the termination of tenancies. An extension of the best Kentish methods was advocated, and a distribution of production over a much wider area, as trees were often barren in one district and laden with fruit in another, it might be 200 or 300 miles north of London, through the later blossoming of the trees. The fallacy of the reiterated allegation of fruit to the value of £8,000,000 being imported annually that might be grown in this country was exposed, and it was because the statement had scarcely an approach to truth that there was such a wide field open for British cultivators, who were advised to adopt American methods in selection, culture, packing, and marketing, then the time would not be long in coming when our enterprising rivals would be beaten in our markets. After indicating the periods after planting at which different kinds of fruits become profitable, Mr. Wright gave practical hints on situations and shelter for trees, soil and its preparation, planting, pruning, and manuring, some of the more important manipulative points, including the arrangement of trees, being illustrated by large coloured drawings. As it is not easy to give a digest of this portion of the lecture a few citations are adduced:—

Situation and Shelter.—As far as is possible avoid damp hollows where fogs or mists are prevalent, no matter how rank the grass may grow and how rich the soil may be. Trees in such positions grow rapidly, often too luxuriantly, and the wood does not then ripen, while if it does, and blossoms expand, they will be in great jeopardy of destruction by frost. I had for many years two orchards under my eye in the same parish; one was in the water course of the district, the other on the ground about 100 feet higher. The bottom orchard consisted of splendid young trees that blossomed freely, but spring after spring the beautiful prospect of fruit was turned into desolation by the action of frost in the moisture-laden atmosphere, while the trees grown higher and drier escaped injury. The lower orchard has not, over a series of years, given anything approaching a profitable return, but the one above the fog line, so to say, has been highly remunerative. An extensive riverside plantation in Worcestershire has produced nothing but disappointment; another, not a quarter of a mile from it, on higher ground, has afforded rich harvests of fruit. Still, when practicable the other extreme of great exposure and bleakness should be avoided, for a little shelter such as that afforded by hills or trees is desirable, and especially from the south-west and north-east, for a keen driving easterly gale often nips the blossoms in spring, while a tornado from the other direction in autumn strips the trees of fruit.

Soil and its Preparation.—For practical purposes it is sufficient to know that land in condition to grow first-rate crops of Potatoes, Turnips, Wheat, and Clover will grow first-rate fruit. Light or sandy soil on gravel will not do so. It must be of a holding character, and perhaps the stronger it is, provided it can be brought into good tilth, the better. It must contain potash, phosphorus, lime, and soda, and it is because of the presence of these essentials that the crops above mentioned exceed the average in bulk and quality. When spade culture is employed double digging pays well if properly done. The right way is to break up the ground to a depth of 2 feet or thereabouts, keeping the best at the top and the poorer subsoil below, or only an inch or two of the latter should be mixed with the upper layer. The wrong way most decidedly is to bury all the top, or best, soil at the bottom of the trenches with a foot of the subsoil dug out of them. If land is prepared with horse power the subsoiler should follow the ordinary plough both lengthways and across the field. The land may be stirred in that way to a depth of 18 inches, the bulk of the best

being kept in the best position. A good tilth can then be secured with other implements in suitable weather. See that the land has good natural or artificial drainage. The water table should seldom rise higher than within 3 feet of the surface.

Choosing Trees.—Small clean, thrifty young trees of two seasons' growth from the buds or grafts with a plenitude of fibrous roots are not only cheaper but better than trees of twice the age and size with few roots. Trees may be studded all over with blossom buds, and perhaps bear a dozen or two of Apples or Pears the first season, but this abnormal productiveness does not deceive "old hands" in fruit culture, but only the young and inexperienced. Trees of this nature are the stunted prodigies of the fruit world, and can no more be made of substantial service than a stunted snappish little poodle can be trained into a valuable shepherd's dog or retriever. So-called cheap trees are often seen in markets with the roots as dry as hay, and the swelling buds shrinking in spring. Leave such trees severely alone. They may be the dearest of trees in the end, for many that do not die refuse to thrive, and not a few so obtained have proved untrue to name and inferior in variety. Of all the disappointments in culture few can be greater than growing trees for some years only to prove their worthlessness. The time thus lost can never be regained, and a bad variety occupies as much space and takes as much nutriment out of the land as does a good one. In buying trees always take particularly into account the characters and reputations of vendors. This, with natural trade competition, is the best guarantee purchasers can have for getting good value for money.

Planting.—The sooner fruit trees are planted after the leaves can be shaken off them the better. They will grow afterwards if moved, even when the buds are swelling in spring, provided the roots are kept moist when out of the ground, and the soil is in free working condition. At no season plant when the ground is in a wet sticky state. Cut off mutilated roots and jagged ends, then the wounds will heal quickly and produce new fibres. Spread the roots out straight, and do not cover them deeper than they were in the nursery, the earth mark on the stems being a line of guidance. Do not place manure either in contact with the roots or under them, but spread it on the surface of the soil over them, and for a foot beyond their extension, leaving it to decay. Do not check roots near the surface by deep digging, but encourage them by top-dressings of manure and vegetable refuse, especially in hot dry weather, for keeping the top soil moist. Roots will then multiply there and produce fruitful growth; if driven down to the poorer subsoil for moisture the resulting growth may be strong, but not productive.

Pruning.—This is a puzzling subject to not a few amateurs. There is no mystery about it, and the learned who would make one are perhaps not quite so learned as they seem. Broadly speaking, it is a question if more fruit has not been prevented than produced by the action of the knife. The principle to grasp is this: If there is a well balanced proportion between root growth and branch growth, and the branches are so thinly disposed that the sun's rays can pass between them, fruit buds will form plentifully. First, then, have a sufficient number of stout main branches for forming a tree, then thin to prevent overcrowding, instead of shortening the branches to create it, or the growths will be crowded or shaded and the leaves spoiled. Good leaves are manufacturers of fruit. Shoots may be shortened after planting, because the roots have been shortened in digging up, and the balance between the two for the time destroyed. We want to restore it as soon as we can, and as we cannot stretch out the broken roots to the length of the branches or shoots we cut back these to correspond with the roots. When an Apple or any other tree grows too luxuriantly in summer, cutting back the shoots in winter is simply followed by more and stronger growths, and so the combat between man and Nature may go on for a generation, and Nature will win in forcing growth. The branches of a strong-rooted tree, if kept thin and not shortened, will in time counteract the root power, form blossom buds, and bear fruit, weather and insects permitting; but if for special reasons the growth must be arrested and kept within certain bounds the roots must be shortened to an equal or a greater extent than the branches.

Insects.—These must be subdued, and not many can resist the effects of a soap and petroleum mixture made by dissolving 2 ozs. of soft soap and a teaspoonful of soda in a gallon of boiling water, stirring very briskly in at the same time a small wineglassful of petroleum, such as is burned in lamps. Applied at that strength in the evening, not in the morning, it does no injury to anything but insects, though if the leaves are wet when hot sun reaches them they are apt to be scorched. Some of the best trees known to me are well syringed with that mixture every winter, and are free from American blight, moss, and caterpillars, though it may not be equally effectual in districts where the latter greatly abound. The remedy then to apply is Paris green.

Manuring.—A word may be useful on manuring fruit trees. They are often too generously treated when young, and over-exuberant growth incited; while when exhausted by bearing, or impoverished soil, they are left to starve, or, in other words, are first jampered then neglected. All fruits contain more potash than any other substance in their composition, and simple mixture generally useful will be found in four parts, lbs. or cwt., of nitrate of potash (saltpetre), and superphosphate of lime, two parts of sulphate of lime (gypsum), and one part of common salt, this last to be excluded near the sea coast. But it is obviously wasteful to apply these or any other manure to feed weeds. These must be kept down, and hoeing the ground frequently will greatly promote the growth of fruit trees, bushes, and plants. In reference to applying manure a plain line of guidance is this:—If trees

make young growths 18 inches in length or more the soil is, generally speaking, rich enough; if they make less than a foot of growth a moderate dressing of manure is desirable; if less than 6 inches a liberal application is demanded. A moderate dressing means 2 ozs. of chemicals to each square yard of surface, a liberal one twice the quantity, and it must always be remembered that the best feeding roots of trees that have been left to forage for themselves are not near the stems, but at a distance from them at least equal to the length of the branches. The roots will not travel so far if they find what they need nearer home, and the first need is moisture in summer, hence the advantage of surface dressings of stable manure or vegetable refuse, though circumstances often prevent their application. Liquid manure given copiously is of enormous benefit to trees that need additional support, and many have been invigorated by the contents of cesspools, which may be applied at any time, even in winter.

The lecturer concluded:—One other aspect of the fruit question, and a most important one, remains to be noticed—namely, the result of an extension of planting. If this is considerable will not the supply of fruit soon exceed the demand? My answer to that question is this: It will be soon enough to consider the matter when 25,000 acres of the miserable unproductive orchards of this kingdom cease occupying the land they waste, and an equal extent of other land is occupied with thrifty trees of the best varieties. But why that particular acreage? Because it is equivalent to the Apples now imported. It is from every point of view better to grow that hulk of fruit than to buy it from distant lands, as the nation is now doing. Moreover, mouths are ever increasing; and further, a better supply of first-class home-grown fruit will create a greater demand, as is the case with all useful commodities. We have also to consider that educational agencies are at work that will result in fruit being more regarded as food than it is at the present time. If we do not meet the demand that will arise other nations will do so, notably our go-ahead kinsmen in the land of the west. Have we not a fair chance to compete successfully with them? Land is about or quite as cheap here as it is in America, where the best fruit is grown. The average productiveness of cultivated land is much greater here than there, as is conclusively shown by the Wheat averages—ours being above 29 bushels, theirs being less than 19 bushels per acre. Labour is much cheaper here than there. They have hotter summers that make the fruit drier, and colder winters that often kill the trees; but they have better and more systematic methods. Their fruit culture is garden culture, so must ours be. Given this, with careful handling, sorting, and proper marketing, we shall regain our lost supremacy as a fruit-producing nation, enhance the value of land, increase the field of employment for workmen, and afford our populations what we do not afford them now—a full supply, a good supply, a wholesome and enjoyable supply of the purest food that can be produced—fruit, home-grown well-grown British fruit. Let us all join heartily and intelligently in this most worthy endeavour, and we shall not fail.

Mr. BAILLIE of Chester emphasised many of the points referred to by Mr. Wright, and said that if people that were fruit growers, or intended to commence the cultivation of fruit, were to follow the advice they would not be misled. He said good land, good trees, and good management were the secret of production. The people, too, wanted educating as to the value of fruit as food, for he thought it a shame that fruit should so seldom be seen on the tables of the people, except the wealthier classes. He pointed out that half an acre of land would produce £20 worth of fruit per annum, and said he knew many men near Chester who, with a garden attached to their cottage, more than cleared their rent out of it. (Applause).

Mr. BUNYARD gave some most instructive hints to the gardeners present on fruit growing, which were listened to with great attention.

The Rev. O. M. FEILDEN proposed a vote of thanks to the speakers for their excellent addresses, which was responded to by Mr. BAILLIE, who concluded by moving a vote of thanks to the Chairman, remarking that such gentlemen as Mr. Tower were just the class of people to introduce fruit growing in a district.

The CHAIRMAN, in response, said he was in favour of fruit growing, and would do all he could to encourage it in this district. He advised all tenants to make arrangements with their landlords before commencing to plant fruit trees, feeling sure there would be practically no difficulty in their doing so in most cases. Speaking on behalf of Lord Brownlow, he was quite ready to enter into arrangements which he believed would be satisfactory to the tenants on the Bridgewater estate.

NOTES AND COMMENTS.

ARALIA SIEBOLDI.—Next to the *Aspidistra* I know of no other plant to equal the above for house decoration. It is surprising how long it can be kept in close rooms without injury if carefully watered and kept free from dust. Anyone who has a hothed at command can soon raise a stock if they do not care to invest in a few plants, but like many other specialities in the hands of the nurserymen it is cheaper in the end to purchase a few plants, as the cost is but little.

NICOTIANA AFFINIS.—Regarding the note by your correspondent, Mr. W. J. Murphy, Clonmel, in reference to the plants grown by him, I hope it may prove to be a dwarf variety, as it would be very serviceable for pot culture. The finest effect I have seen produced by being planted outdoors was at Lyons, the residence of Lord Cloncurry, where the gardener, Mr. Down, had planted a border, the back line of which was formed of *Gladiolus* in mixed varieties. The *Nicotiana* was next to

the *Gladiolus*. The two front rows were *Pelargonium Henry Jacoby*, edged with blue *Lohelia*.

BEDDING BEGONIAS.—Anyone in the neighbourhood of Duhlin in August or September who wishes to see these in their glory should pay a visit to the above named garden. None but the best varieties are grown, and they are well arranged as regards colour and height. Mr. Down is very successful in the culture of this plant.

CELERIAC.—This vegetable, a stranger in many gardens, is well worth cultivation. Treated like Celery, with the exception of earthing, it gives but little trouble. Care should be taken that the ground is not too heavily manured, or the roots will be stringy and black in the centre.

BUDA KALE.—A very useful spring vegetable, especially if the winter has been severe. It defies all weather, and when properly cooked equals the best Cabbage grown.

CABBAGE.—Chou de Schweinfurt. Have any of the readers of the *Journal* grown this variety?

PEACH BUDS FALLING.—The main cause of this, I believe, is dryness at the roots. I remember some time ago reading an article by Mr. J. Groom, then gardener at Linton Park, strongly advocating judicious watering through the winter, and never allowing the borders to approach anything like dryness. The instructions referred to I had the opportunity of carrying out last winter with good results.

FREESIAS.—I can add little to the excellent article on the culture of these beautiful winter flowering bulbs by "W. S." I find they do better if potted deep and plunged in sifted coal ashes—in fact, by treating like the Roman Hyacinths I have been fairly successful. I prefer them to any Hyacinth. The best flowering hulk which I have ever seen had a branched spike with twenty-two buds. I find 5-inch pots are the most suitable size to grow them in, as they come in very useful for vases for room decoration.

SEED CATALOGUES.—As this subject has been written about before by abler pens than mine, I do not intend to add much to it. I have been looking through two catalogues of the leading seedsmen in England, and I find there are twenty-eight named varieties of Radishes. Is it not to be wondered that we are put to our wit's end which are the best sorts? If we had three varieties more we should then be able to send to table a different variety every day in the month. The time was when the French Breakfast variety held its own, and I do not think it can be surpassed when well grown.—R. RUSSELL, *Palmerstown*.



EVENTS OF THE WEEK.—The Easter holidays give a brief cessation from horticultural engagements, but the Royal Horticultural Society's meeting on Tuesday, April 8th, will call many back to business. The Fruit, Floral, and Orchid Committees will assemble as usual at twelve noon in the Drill Hall, James Street, Victoria Street, S.W., and at 3 P.M. Mr. W. Ingram of Belvoir Castle Gardens will give a lecture on "Spring Flower Gardening." The usual monthly dinner of the Horticultural Club will also be held on Tuesday at 6 P.M., when Mr. C. T. Druery will read a paper on "The Wonders of Fernland." On Thursday (to-day), April 3rd, the Linnean Society will meet at Burlington House at 8 P.M.

— THE WEATHER IN THE METROPOLITAN DISTRICT has during the past week been variable but fine. Saturday and Sunday were remarkable days, very clear, with a soft S.W. wind, a bright sun, and a high temperature for the season, rising above 60° in the shade on Sunday. The wind changed on Monday to E. and N.E., and it became much colder, but still clear and bright.

— THE WEATHER IN THE NORTH.—March 24th-31st. Alternate bright and dull days have marked the past week; 2° frost on the morning of the 24th, and 3° last night. Saturday was the most unpleasant day of the week, with high gusty wind and pelting showers from the west. Sunday was as enjoyable as the preceding day was disagreeable, and the last day of March was also fine.—B. D.

— THE WILDSMITH MEMORIAL FUND.—We are desired to state that the total amount received up to March 26th, as contributions to the above fund, was £91 9s. 6d. Further subscriptions are earnestly solicited to raise the sum required for the proposed purpose. They may be sent either to Mr. T. Turton, Maiden Erleigh Gardens, Reading, Hon. Secretary; or to Mr. A. W. Sutton, Reading, or Mr. H. J. Veitch, Chelsea, Hon. Treasurers of the fund.

— CROCUSES AND SNOWDROPS.—There have been of late several articles on early Snowdrops and Crocuses, but, like many other plants,

earliness without lateness is incomplete. I have a late Crocus, of dwarf habit, that comes into flower after all the others are past. The Crimean Snowdrop was the latest we had until a few years ago, but a seedling is later still. A clump of these in the same position as earlier sorts did not expand until the 24th of March. Its foliage seems more dwarf than its congeners, and I may say an acquisition, as Snowdrops for three months in the year must be.—W. T.

— ON MARCH 22ND MR. W. CAULDWELL of The Ivies, Wantage, Essex, died in his sixty-seventh year. The deceased was a well known florist who had given much attention to Primroses with other hardy plants, and we have had occasion several times to notice his productions.

— THE BRIGHTON AND HOVE CHRYSANTHEMUM SOCIETY Committee are compelled to change the dates of their Show from November 4th and 5th to the 11th and 12th, because the "Dome," &c., has been engaged for another special affair during the week we had fixed on. Will you be so good as to announce the alteration in your valuable paper?—MARK LONGHURST.

— SHREWSBURY FLORAL FÊTE.—The summer Show has been fixed for August 20th and 21st, and the schedule of prizes is advertised in our columns as ready. This Fête holds its own as one of the most successful in England. By the balance-sheet for 1889 we find that the receipts for the year were no less than £2430, and this, notwithstanding the Show was held on two of the rainiest days in the year, a perfect downpour prevailing nearly all the time, the profits of the year were about £250, and the visitors exceeded 40,000. The simultaneous visit of Her Majesty the Queen to Wales prevented many visitors being present from a district from which the Society usually draws a large number of visitors.

— FRUIT GROWING IN SCOTLAND.—Mr. Cecil H. Hooper writes :—"I was in Edinburgh last week to give a lecture on Fruit Farming to the students of the agricultural class of the University, and had the pleasure of visiting the Duke of Buccleuch's gardens. In the houses there were Peaches nearly as large as Walnuts, Grapes, Pines, and ripe Strawberries. They get their coals now at 11s. a ton, and generally nearer 9s., which is a great advantage, and I think must more than compensate for the greater heat we receive. During summer they receive longer sunlight. At Dalkeith the vegetation was as forward as at Swanley. Hawthorn was in leaf, and Pears were nearly opening their blooms. I visited Mr. Welsh's fruit farm near Edinburgh. He grows Morello Cherry as bushes largely, and Raspberries, tied in the form of arches to lines of wire. His Strawberries are grown in beds of three rows, then one row omitted for convenience in picking. He has shelter Apple fences, Gooseberries, Black, Red, and White Currants."

— INTERNATIONAL HORTICULTURAL EXHIBITION AT BERLIN.—A sixth circular has been issued relating to this Exhibition, from which we gather that a special Committee has been formed for the decorative section, as it is intended to make special efforts for showing the connection between horticulture and architecture in respect to the adornment of rooms, balconies, and winter gardens. Prizes will be given for the most worthy examples. The guarantee fund has reached 90,000 marks (about £4500). An important part of the Exhibition will be the scientific division, in which the co-operation of several scientific institutes is announced. It is expected that the exhibition of petrified plants will prove of special interest to many, and that the landscape gardening division will be of considerable extent. Season tickets may be had for the Exhibition on favourable terms. All information may be obtained from the Secretary, Berlin N., Invalidenstrasse 42.

— THE SPRING SHOW OF THE SHROPSHIRE HORTICULTURAL SOCIETY was held in the Music Hall, Shrewsbury, on March 27th. The morning was wet, but during the afternoon the weather improved, and the Show was crowded at times by the aristocracy of the district. In some of the classes the competition was not so keen as usual, but there was no falling off in the quality of the exhibits. The chief prize, £3, for twelve plants in bloom in 10-inch pots, was won by Mr. J. Lambert, gardener to Col. Wingfield, Onslow Hall, Shrewsbury. *Rhododendron fragrantissimum* was doubtlessly the finest plant in the Show. Mr. Farrant, gardener to Mrs. Jason, Abbey Forge, Shrewsbury, was second, *Plumbago coccinea superba* and *Clerodendron Balfourianum* being his best plants. In other classes the principal prizewinners were Messrs. Lambert; Murrell, Oldfield Nurseries, Shrewsbury; A. Darby; Thurtle, gardener to Mr. Phillips, The Mount, Shrewsbury; Burr; Myres, Sutton Lane, Nursery; Davis, Blunt, Dicksons (Limited) Chester, and Perkins, Coventry.

— CABBAGE AND BACON.—One hundred and ten thousand tons of Cabbages are estimated to be used in London yearly, and an average of a thousand pigs are said to be eaten in London daily.

— BOLTON AND DISTRICT CHRYSANTHEMUM SOCIETY.—I beg to remind you that the Committee have arranged for the fourth annual Show of this Society to take place on the 14th and 15th of November next.—JAMES HICKS, *Hon. Sec.*

— GARDENING APPOINTMENTS.—Mr. G. A. Bishop has been appointed head gardener to S. T. Mander, Esq., Wightwich Manor, Wolverhampton; the gardens attached to the new mansion are expected to be formed and furnished on a very complete scale. Mr. J. Tunnington, foreman, Ketton Hall Gardens, Stamford, has been appointed head gardener to Sir H. D. Ingleby, Bart., Ripley Castle, Yorkshire.

— APPLE BEAUTY OF HANTS.—There are some doubts about this variety being distinct. It resembles the Blenheim Pippin so much, both in shape, size, flavour, and general appearance of the fruit, that it is considered by many of our best pomologists to be a synonym of it. While admitting the great resemblance of the fruit the trees differ much in habit of growth and in precocity of fruiting. Beauty of Hants is a robust grower, branch erect, and the tree when properly pruned forms a handsome symmetrical pyramid; whereas Blenheim Pippin grown as a pyramid is loose in habit of growth, and more inclined to spread out than grow erect, and the trees take a much longer time to come into a free bearing state than the Beauty of Hants. I planted several trees of both varieties here twelve years ago. The trees of Beauty of Hants have been bearing good crops of fruit for the last six or seven years, and it was only last year that Blenheim Pippin began to bear for the first time, although the trees are a good size and in the best of health. The stock on which they are worked may have something to do with it. It is a free stock, but I cannot say whether they were raised from the wild Crab or the seeds of cider Apples.—A. PETTIGREW, *Cardiff*.

— HORTICULTURAL CLUB.—A house dinner of the Club took place on March 25th, when Mons. Henry de Vilmorin was the guest of the evening. There was a very full attendance of members, representing all classes of horticulture, to do honour to their distinguished guest. The chair, in the absence of Mr. John Lee, who was prevented by other engagements from being present, was taken by Dr. Hogg, a very old friend of Mons. de Vilmorin. There were present the Rev. W. Wilks, the Rev. F. H. Gall, Messrs. Shirley Hibberd, Bunyard, Walker, Jefferies, Lynch White, Arnold Moss, Northrup from Minneapolis, Minnesota; J. H. Veitch, Herbert J. Veitch, Morris, Crowley, A. F. Barron, Wheeler, Herbst, Prince, Cousens, Turner, &c. The health of the guest was proposed by Dr. Hogg, and responded to in graceful terms by Mons. de Vilmorin. Other toasts were also given. "The Other Visitors," for which Mr. Northrup returned thanks; "The Royal Horticultural Society," proposed by Mr. Shirley Hibberd; "The Chairman," proposed by Mr. Wilks. A most enjoyable evening was spent, and many hearty good wishes expressed for the prosperity of the Club.

— THE JAPANESE PLUM.—Referring to the Japanese Plums Mr. John Gelding writes to the *Sydney Morning Herald* :—"Mr. Walter Hill, late curator of the Brisbane Botanic Gardens, has forwarded to me a box of Japanese Plums. This species appears peculiarly adapted for cultivation in climates where the ordinary varieties of Plums refuse to produce fruit, and from Mr. Hill's account the variety is wonderfully prolific in all such districts. The fruit, which rather exceeds in size a well-grown specimen of the Orleans Plum, has a rich, dark elarct skin, the pulp when fairly ripe being about the colour of the Prickly Pear, and when fully ripe is of a deep beetroot colour. Respecting its flavour, the fruit appears more suitable for preserving than for dessert purpose; and as without doubt the species will grow and produce fruit well in any part of New South Wales, those who go in for fruit preserving should largely grow this Plum as, preserved either as a jelly or as a jam, its colour would form a very attractive feature. I should also say that as a vegetable colouring matter its use should be adopted for colouring confectionery, and even dull-looking jams. The trees are of quick growth, and any quantity can be obtained by cuttings when once a healthy tree is obtained."

— WARE AND DISTRICT MUTUAL IMPROVEMENT SOCIETY.—This Society has held two successful meetings during the past month. On the 11th inst., Mr. A. King in the chair, a paper on "Vine Cul-

ture" was submitted to the meeting by Mr. J. C. Parker, and evoked a capital discussion by Messrs. Riding, Gull, Alexander, King, Phillips, and Fulford. There was much diversity of opinion on many points. A vote of thanks to the essayist and Chairman terminated the meeting. On the 25th inst., the Rev. E. E. W. Kirkby in the chair, a practical paper on "Mushroom Culture" was read by Mr. E. Wallis. Mushrooms were exhibited by Messrs. Bray and Gilliams. A lengthy discussion followed by the following members—Messrs. Bray, Alexander, Riding, Durrant, Phillips, Brown, and Fulford. A hearty vote of thanks was accorded the essayist for his excellent paper, and a similar compliment to the Chairman for his services concluded the meeting. The Committee are more than satisfied with the progress made by the Society since its birth, but there are plenty of gardeners and their assistants within easy reach of the meetings that do not attend. The Committee will be most happy to welcome them either as visitors or members. Any information will be gladly furnished by Mr. J. B. Riding, Hon. Sec., Ware.

— THE SPRING SHOW AT THE CRYSTAL PALACE, Sydenham, was held on Saturday last, March 29th, the principal classes being those for Grasses, Hyacinths, Lilies of the Valley, Mignonette, Cinerarias, Azaleas, Cyclamens, Tulips, and Narcissi, the non-competing exhibits comprising several large collections similar to those seen at preceding shows this season. Messrs. J. Laing & Sons, Forest Hill, won first honours with a capital group of Clivias, Azaleas, Orchids, and foliage plants. Messrs. H. Williams & Son, Finchley, were the principal exhibitors of bulbs, securing first prizes in several classes. Noteworthy exhibits also were the following:—Mignonette, from Mr. A. Carter Ewell Grove Gardens; Cinerarias, from Mr. J. Ford, Wexham Park Gardens; Amaryllises, from Messrs. Paul & Son, Cheshunt; Azaleas, from Mr. R. Wells, Sydenham; Cyclamens, from St. George's Nursery Company; Narcissi and Hyacinths, from Mr. Shoesmith; and Tulips from Mr. W. Clarke. Among the non-competing exhibits Messrs. B. S. Williams & Son, Upper Holloway, had a handsome group of bulbs and forced plants; Messrs. Paul & Son contributing a collection of Roses in pots and hardy flowers, and Messrs. Barr & Son a collection of Daffodils.

— BOURNEMOUTH GARDENERS' ASSOCIATION.—The fortnightly meeting of this Society was held on Wednesday, March 19th, at No. 4, The Quadrant. Mr. W. J. Ward, gardener, Kempsey, presided, and in a few words introduced Miss C. A. Rooper, The Tines, Bournemouth, who read a most interesting and instructive paper on the history of the Daisy. Miss Rooper, by the aid of well executed diagrams, and also specimens of fossils, which had laid in the bowels of the earth for countless ages, traced the history of the vegetable kingdom from pre-historic times until it assumed its present form, and showed how the little Daisy plays a most important part in the vegetable world. The Chairman, in the name of the members, thanked Miss Rooper for her valuable paper, and for the kindly interest which she takes in the Society. Miss Rooper in reply thanked the members for their hearty reception, and in the name of her father, the Rev. W. H. Rooper, presented to the library of the Society Mr. Wm. Paul's work on Roses, entitled the "Rose Garden." Other works on gardening were presented by E. L. M. Colvile, Esq., Kempsey, Mr. J. J. Swaffield, and Mr. W. Watts, nurserymen. A vote of thanks to the Chairman concluded the meeting.

— A PAPER ON FORESTRY IN INDIA and the Colonies was read recently by Dr. W. Schlich before the Royal Colonial Institute. He said that for 700 years a gradual destruction of the forests of India had gone on. Under British rule the process had been hastened by the extension of cultivated and pasture land, and by the laying down of railways. After a time difficulty was experienced in meeting demands for timber, and in the early part of the century a timber agency was established on the west coast, while, in 1873, a teak plantation on a large scale was made at Nilambur. Through the energy of a few officials the matter was kept before the public, and in 1882 the Forests Department of Madras was entirely reorganised. Several Acts were passed to provide for the management of the forests under the protection of the State, and a competent staff of officers was provided, to be reinforced from time to time by those educated at Cooper's Hill College. Under the charge of the Department were some 55,000,000 acres of forest lands, and the figures relating to the cost of the work done were very satisfactory. Dr. Schlich then gave an account of the action of the Australian Colonies with regard to the regulation of wooded lands by the State, contending that in no case had sufficient steps been taken to ensure a lasting and continuous supply of timber.—(Nature.)

— GARDENERS' ORPHAN FUND.—At a meeting of the Committee, held on Friday evening last, payments of the following sums were announced:—Mr. English, as the proceeds of a concert, £5; Mr. L. Castle, by sale of books, £5; H. Pears, Esq., of soap fame, £5; G. S. Foljambe, Esq., £5; Mr. Roupell, proceeds of lecture, £6; benefit from Covent Garden Theatre, £10 19s. 6d. The Secretary expressed a hope that supporters of the Fund would favour by sending their subscriptions as early as possible. A cheque for £61 15s. was signed for the quarterly payments to children. Mr. L. Castle was appointed local Secretary for the Merton and Tooting district. Mr. T. Turton, Maiden Erleigh, Reading, signified his acceptance of the position rendered vacant by the death of Mr. Wildsmith. Mr. H. Divers, on his return from Florida, resumes his position as local Secretary for Ketton and surrounding district; and Mr. J. Trevor, Hatley St. George, was appointed local Secretary for Malvern. The Committee were glad to find that substantial progress was being made in the Wildsmith Memorial Fund, and trusted the £30 or £40 still needed to provide for the maintenance of a child would soon be forthcoming. The amount collected is referred to in a preceding note. In respect to the Floral Fête, to be held in the great wholesale flower market at Covent Garden on May 21st, a letter from the Mansion House announced the willingness of the Lady Mayoress to open the Exhibition. Tickets of admission will be the same as last year, 5s. each. A sub-Committee was appointed for making the necessary arrangements for what is hoped will be one of the most brilliant gatherings of the season.

— WE have received a copy of "CARTER'S PRACTICAL GARDENER," which has now reached the fourteenth edition, giving the book, we are informed, a circulation of over 100,000 copies. New, and as may be expected, good articles on Chrysanthemums by Mr. E. Molyneux, on Cucumbers by Mr. A. Pettigrew, and on Tomatoes by Mr. W. Iggulden are included, and the whole work revised and brought up to date. It is generally pronounced "a marvellous shillingsworth."

— THE CATERPILLAR PLAGUE.—Fruit growers will no doubt in many instances be astonished to learn that the winter moth's eggs are now hatching out rapidly in the orchards. I found an odd caterpillar on the 18th of March, but on the 27th a number of newly hatched ones were discovered. When first hatched they are so small that only those with good eyesight can discover them. Miss Ormerod recommends half a pound of Paris green to fifty gallons of water (keeping the mixture constantly stirred) as a spray for destroying the newly hatched pests. In a few days we shall give it a trial, and I hope it will prove effectual. During the past two months we have hatched eggs on shoots in our earliest Peach houses, and tried many experiments for dealing with the plague; but so far I cannot chronicle any real success, as it is far easier to kill the shoots than the insects. A few Apple trees in pots were placed in the latest vinery in the middle of January. In a short time eggs commenced hatching, and though the trees were carefully looked over daily by my employer and I we could not prevent the caterpillars spoiling most of the blooms. I believe that we have tried nearly all known insecticides (except Paris green), and also every other means that we could think of, all of which are more or less unsatisfactory, though we have destroyed millions of eggs by killing the female winter moth by hand on the trees (dwarfs) and cutting off and burning pieces infested with eggs. In time I have no doubt we shall be able to master these pests of fruit trees, but in the meantime it is very uphill and discouraging work. Perhaps it may be possible to syringe the trees in autumn with some composition that would prove offensive to the moths, and prevent their depositing eggs on them. Grease bands are of only slight value, as I have caught the male and female flying together as high as I could reach, the male having sufficient power to convey the nearly wingless female into the trees. Since writing the above we have had several degrees of frost, but the caterpillars seem to have received no injury, though newly hatched.—S. T. WRIGHT, *Glewston Court Gardens*.

THE HENDRE, MONMOUTH.

THIS beautiful place is the residence of J. A. Rolls, Esq., and is situated about four miles from the ancient town of Monmouth, which has greatly benefited by the munificence and generosity of Mr. Rolls. In the Jubilee year he built and presented to the town a very fine hall, and which is highly appreciated by the inhabitants. The road from Monmouth to The Hendre was formerly a heavy one, abounding in steep hills. This has been vastly improved, some of the hills having been lowered, or, where that was not possible, new roads have been made; thus not only benefiting the public generally, but finding employment for the working class during the winter months when work is scarce.

No doubt many a poor man's family would have suffered want if it had not been for Mr. Rolls' liberality in providing employment. On passing through a pretty lodge, the house and gardens are approached by a serpentine drive through a well-wooded and extensive park, which must be very attractive in summer. The gardener's house is pleasantly situated, looking into the park on one side and into the gardens on the other. On reaching it a most hearty welcome was received from Mr. and Mrs. Coomber, and as time was limited, an almost immediate adjournment was made into the houses. The first house we entered contained some splendid Queen Pines, showing grand fruits—in fact every one was good. Mr. Coomber, who has had charge here for sixteen years, never has a Pine moved after it is placed into the fruiting-size pot, as he justly remarked it is almost impossible to move them about without some little injury. That the practice answers is amply demonstrated by the plants. Pines in other divisions are the picture of health and good management. Queens appear to predominate, but Smooth Cayenne and Charlotte Rothschild are also extensively grown.

Leaving the Pine stoves, a range of vineries was next entered. The first division contains late Vines just beginning to break strongly and regularly. The next is an early house, in which the Vines are in grand order, and though forced early for many years, the growth and foliage are remarkably fine, and a heavy crop of large and shapely bunches are hanging. The last division is planted with various kinds, all commencing to break well. Gros Maroc is particularly strong. Alnwick Seedling also is well worthy of notice. Some find this a difficult Grape to set well. Mr. Coomber's plan may be of service to them. When in full bloom the bunches are syringed to wash off the glucose matter, and the next day are fertilised with pollen from another variety. Under this treatment no difficulty has been experienced in securing a good set. Passing into other houses, Melons, Cucumbers, and Tomatoes are all in fine health and promise good results. At the back of these is a house containing some extraordinary large Calanthes, many of *C. Veitchi* being a foot or more long in the bulb, and other kinds equally fine. Entering the kitchen garden, another range of vineries and Peach houses run along the walls. These vineries have been planted recently with young Vines in inside borders, the old Vines being planted outside, and will probably remain till the young ones require most of the room. Both the young and the old Vines look very promising, but with the heavy soil here, inside borders will prove the most satisfactory. The early Peach trees have set a heavy crop of fruits, which are now about stoning. The other houses contain trees from those mentioned down to others coming into bloom. In the whole long range every tree is carrying or promising good crops of fruit, and without exception are models of high cultivation. Strawberries are forced extensively, about 1600 plants being grown. When the plants are put in to force, a square piece of turf is placed under each pot, which is better than saucers, as the water can pass away freely and at the same time supply a moist medium for the roots to run into. A new house has just been erected for forcing Strawberries, from plans proposed by Mr. Coomber, and I think it is the best for the purpose I ever saw. It is span roof, with tiers of shelves running lengthways of the house one above another, from the eaves to the ridge, thus placing all the plants close to the glass. Watering is done from the under side of the shelves, the plan being very convenient, as the plants can be reached for any purpose.

The plant houses are all filled with well grown and useful plants. The first house contained at the front a very strong and healthy collection of Chrysanthemums, consisting of all the newest and best varieties, principally grown for producing large blooms. At the back a large quantity of *Lachenalia tricolor* were a mass of bloom; it is seldom that these beautiful plants are seen so finely grown as here. The next house was filled chiefly with Orchids. *Cypripedium* appeared to be in great variety, some of the plants being very large, the old *C. insigne* being grown in quantity and well. A fine plant of *C. Spicerianum* was also conspicuous, and many smaller *Cypripedium* in choice variety. *Cymbidium eburneum* was blooming profusely, and *Cattleyas*, *Cœlogynas*, *Dendrobiums*, *Trichoplias*, and *Lælias* are all excellent, and no doubt a fine collection will soon be established. Another house is devoted to plants for decorative purposes, all clean, bright and healthy. In one of the houses some really magnificent *Eucharises* are grown. Most of the plants are of enormous size, and throw up immense quantities of bloom. Carnations are largely grown, as they are not only very useful for cutting, but they travel well in sending to the family. At the back of the plant houses a small case is occupied by Filmy Ferns, *Todea superba* being particularly fine, but all receiving treatment that evidently suits them well. A little further on is an orchard house filled with Plums, Pears, and Apples, all promising to carry good crops.

The conservatory is adjoining the houses, and is a large and lofty structure, well filled with Palms, Ferns, Pandanus, climbers, &c. *Lygodium scandens* is much liked as a climber; every year it is cut down to the soil, and the way the young growths are coming up again proves how well the system answers. One side has a well arranged rockery, and by the aid of water is rendered very effective. Many rare and beautiful plants cannot be mentioned, as time was flying fast, and no notes could be taken. The shrubberies and pleasure grounds are kept in the best of order, not a weed to be seen anywhere, neatness and good order prevailing in all departments. The kitchen garden is highly cultivated, and lies well to the sun. Great credit is due to Mr. Coomber for his success in every part of his charge, as the soil is of a very heavy nature, and requires a good deal of judgment and careful management. To commemorate the Jubilee year a new and commodious bothy was erected for the young men. Both Mr. Rolls and Mr. Coomber evidently

desire to make everyone happy, contented, and comfortable on the place. Long life and prosperity to them and all belonging to them.—S. T. W.

PRUNUS PISSARDI.

THOUGH the above named *Prunus* is chiefly known and valued for its richly coloured foliage, it is also useful for early flowering under glass, and in this way is now employed in some gardens. The flowers are white, or with a faint tinge of pink. They are produced most abundantly, and in contrast with the dark coppery leaves just appearing, they look extremely well. The tree is of slender, graceful habit,



FIG. 36.—PRUNUS PISSARDI.

and seems to be well adapted for culture in pots. It is readily forced, and lasts for some weeks.

The spray figured was supplied from Mr. A. H. Smee's garden at The Grange, Wallington, where it is prized for its useful qualities; and the gardener, Mr. Cummins, speaks highly of it for decorative purposes. When the leaves are fully expanded out of doors the tree has a striking effect amongst green leaved or variegated shrubs, the colour being a distinct reddish or coppery bronze—quite a metallic tint. It does not appear to be particular as to soil or situation.

CULTIVATION AND SELECTION OF POPULAR ORCHIDS.

BY MR. ALEXANDER WRIGHT.

[Prize Essay, Chiswick Gardeners' Mutual Improvement Association.]

ORCHIDS have of late years become such favourites with most plant lovers that it is important the gardener should have a good knowledge, not only of their culture, but the selection of the most popular and

useful kinds suitable for home decoration. That selection is no easy matter becomes apparent when we call to mind the great number of Orchids now known, numbering, according to different authorities, from 3000 to 6000 species.

By "popular Orchids" I mean those that are most appreciated by the general public, admired for the beauty or fragrance of their flowers alone, and not for their money value. The high prices realised by some of the varieties that have appeared amongst imported plants have helped, to a large extent, to draw the attention of plant lovers to this quaint and varied family. And it is curious to notice that once the attention is drawn to Orchids, and their beautiful and curious flowers are examined, the more one sees of them the greater is the desire to know more about them. Whether this may be owing to the diverse shape and size of some of the flowers, to the rich and various colours to be found amongst them, or the delicious perfumes given off by some of the flowers, or all combined, I am not prepared to say; but certain it is there is a great fascination in Orchid flowers and in Orchid growing, and the passion expands as though destined to become universal. In no class of plants do we find mimicry carried to a greater extent than in Orchids. Here we may see rude representations of the bee, the butterfly, the dove, the swan, beetles and flies, and even man himself is not omitted from the range of resemblances.

In colour the most fastidious in taste can be pleased, as nearly all colours and shades are to be met with in Orchid flowers. The perfume of the flowers is varied; in some species it is most pleasing, and in others so strong—or, as some people I know put it, so offensive—that it is best inhaled at a distance. When we consider we have all those advantages combined in one class of plant, it is not surprising to find that their culture is increasing year by year by "leaps and bounds," as their treatment and requirements become better understood.

We often hear it said we "kill our favourites with kindness." In no class of plants does this apply with more force than with Orchids. There have been more Orchids killed by attempting to grow them in a too hot and dry atmosphere than all other causes combined. This, to a large extent, may be the fault of the plant collector in the first place, who may find some plants in a tropical country, and in sending them home forget to say they were found growing so many thousand feet up on a mountain side, in a cool and moist temperature, or whether they were found growing in the valley below, where the atmosphere was both hotter and drier. This, unfortunately, may be considered one of "the secrets of the trade," to prevent other collectors discovering the locality where certain species or varieties are to be found. Whatever may be said to the contrary, I consider that to know the native habitat of a plant and its surroundings must be a guide to a certain extent to its successful cultivation, although it would not always be correct to conclude that the conditions were everything the plant desired, but rather the conditions were the best to be had under the circumstances.

When the cultivator has no reliable information of a plant's natural habitat to guide him in its culture on its first introduction, often many plants are lost until a mode of treatment is found under which they will grow and thrive. But we are living in an age of rapid progress, and let me say, to the credit of gardeners generally, that when once they discover the cultural requirements of any plant that has been found difficult to establish and grow, there are few amongst them but would let it be known for the benefit of their fellow workers. Possibly in no other class of men will you find this kind and friendly spirit so freely carried out as you will amongst gardeners. With this friendly spirit so prevalent, and with the aid of the horticultural press, any difficulty in plant growing once understood and explained, soon the information spreads throughout the length and breadth of the land, and all are benefited by the publicity.

The cultivation of Orchids in private gardens is often carried on under great difficulties, either as regards the houses they have to be grown in not being of suitable construction, or having to grow them along with other plants. Yet we often meet with examples of successful culture where Orchids have to be grown with a miscellaneous collection of stove plants, and many of the grand collections of Orchids now to be met with throughout the country were first started in this way. Where Orchids have to be grown with other stove or intermediate house plants, as we often find them in places where there are no houses devoted entirely to their culture, it will be found advisable to keep the plants as well up to the light as possible, and away from the dry air coming direct from the hot-water pipes. It will be found that growing the plants in baskets suspended from the roof of the house, where the house is large and the plants would be a considerable distance away

from the glass if left on the stage, is one of the best ways to obtain satisfactory results. Most of the epiphytal Orchids will be found amenable to this treatment, and where the house is lofty it is surprising what can be done to add to its attraction in this way. Where the plants are kept near the glass as here recommended, it will be found that they will grow better and bloom more freely than plants grown further from the light, and with more substance in the flowers, consequently lasting a longer time in perfection.

If it is desirable to grow the Orchids in pots on the stage amongst other plants, and the stage of the house is made with the usual wooden battens, and the hot-water pipes underneath, it will be found a great advantage to fill in the open spaces, and cover with shell shingle, broken coke, or ashes, to retain the moisture amongst the plants when necessary, as will be the case during their growing season and the hot summer months.

Where Orchids are grown in quantity it will be necessary and of the utmost importance to have suitable houses, and the small span-roofed house running east and west has been found the most adapted for their requirements. For the culture of what are termed cool-house Orchids, a house not exceeding 12 feet wide will be found the most convenient, just allowing room for a path down the centre of the house, and side stages from 3 to 4 feet wide on either side. Some horticultural builders have adopted the system of double stages, but where water tanks are formed the length of the house on both sides the double stages are not at all necessary. For cool-house Orchids I would strongly recommend the formation of those tanks. It is not necessary they should be more than a few inches deep, with perhaps a deeper part about the middle of the house, to allow the dipping of a can for watering purposes. I am strongly in favour of the shallow tanks in preference to deeper ones, as they are more readily cleaned out. The stages should be kept well up to the light, yet leaving room for the plants to be stood on inverted pots, as this allows more room for using the syringe freely amongst the plants in damping down.

In the heating arrangements of the house there should be sufficient hot water to keep up the necessary temperature without having the pipes too hot. The ventilation of the house should be ample; there should be means of admitting plenty of air opposite the hot-water pipes, as well as at the ridge of the house. The question of air is a most important one in Orchid growing. To be a successful cultivator it will be found beneficial to have a plentiful circulation of fresh air amongst the plants, even when it is necessary to apply a little more fire heat to keep up the required temperature. I do not go so far as to advocate, as some growers do, the admission of cold air even when it is freezing sharp. I do not believe that air admitted under such circumstances is beneficial to the plants, but rather otherwise. If air is admitted at all other times the plants will suffer no ill effects by the house being closed at night during frosty weather. Again, in the neighbourhood of London, where fogs are so prevalent, a sharp look-out will have to be kept to guard against them finding an easy entrance into the houses. The houses should be closed on its first appearance, otherwise the effect of a dense fog will be most disastrous to the flowers and flower buds, causing them to wither up and drop wholesale. Some species are found more liable to the injurious effects of the fogs than others. The *Phalænopsis*, *Calanthes*, *Dendrobiums*, *Lælias*, and *Oncidium* flowering during the autumn and winter months suffer to a larger extent than perhaps any other genera.

Let us now turn our attention to the house just described, and see what may be done with it. Having agreed to adopt a minimum winter temperature of 50° to 55°, with a proportionate rise with sun heat during the day, and a minimum summer temperature of 60°, with the corresponding rise in the daytime, we will have a house in which a great many of the most beautiful of our popular Orchids may be successfully grown.

ODONTOGLOSSUMS.—Coming first on the list of popular Orchids would be *Odontoglossum crispum* (perhaps better known as *O. Alexandræ*), one of the most beautiful and useful of Orchids. This, along with its other varieties, will always form a very attractive feature in the house, for wherever a quantity of it is grown the house will seldom be without some plants in flower. Other *Odontoglossums* that would find a place amongst popular Orchids would be *Andersonianum*, *Cervantesi*, *Chestertoni*, *cirrhosum*, *citrosimum*, *Edwardi*, *gloriosum*, *grande*, *Halli*, *Insleayi*, and its varieties, *splendens* and *leopardinum*, *luteo-purpureum*, *maculatum*, *Oerstedii*, *Pescatorei*, *Phalænopsis*, *pulchellum*, *Rossi majus*, *triumphans*, and *vexillarium* (this last at the warm end of the house).

Of **CYPRIPEDIUMS**, *Boxalli*, *barbatum* and its lovely varieties, *Harris-*

ianum, insigne, and varieties; Lecanum, Leeatum superbum, Schlimii, venustum, villosum, &c.

Of ONCIDIUMS, dasystyle, Forbesi, incurvum, macranthum, Marshallianum, ornithorhynchum, tigrinum, varicosum, and Rogersi.

CATTLEIAS, citrina, erispa, Lawrenciana, labiata, Gaskelliana, Mendeli, Mossiæ, Skinneri, Trianae, and its pretty varieties.

LÆLIAS, albida, anceps, autumnalis, and varieties; Dayana purpurata and varieties.

EPIDENDRUMS atropurpureum, fragrans, vitellinum majus.

DENDROBIUMS, Ainsworthi, crassinode, Devonianum, aureum, nobile, Pierardi, thyrsiflorum, and Wardianum.

ADA aurantiaca.

AUGULOA eburnea, Clowesi.

CÆLOGYNE cristata and its varieties.

CYMBIDIUM eburneum, Lowianum, Mastersi.

LYCASTE Skinneri and its numerous varieties; aromatica, citrina, plena.

MASDEVALLIA amabilis, Chelsoni, Chimæra, Harryana and varieties; ignea, Lindeni, and Veitehiana.

PLEIONE humilis, Lagenaria, maculata, and Wallichiana.

SOPHRONITIS grandiflora.

Some of the above species are not generally given as cool house Orchids, but in the temperature recommended above I have found them grow and flower satisfactorily. I have also omitted many of the beautiful named varieties of different species, but with them it is only the question about their price which keeps them from becoming popular.

(To be continued.)

HORTICULTURAL BUILDINGS AND HEATING APPARATUS.

[A paper read by Mr. Henry Hope, horticultural builder, at a meeting of Birmingham Gardeners' Association.]

(Continued from page 257.)

SOME very good examples of what I consider useful, as well as ornamental, conservatories are the following. To commence with an exceptionally large one, the conservatory at Enville Hall, Staffordshire, the seat of Lord Stamford, is a splendid example of a modern winter garden, and is certainly one of the finest in England. It is constructed of timber and iron, a very striking feature in the design being the glass cupolas in the roof, which have been used for placing large Azaleas in with a very good effect. The conservatory at Chatsworth, Derbyshire, is remarkable more for its size than for its beauty. A very architectural conservatory, and one of the most beautiful that has ever come under my notice, having a large amount of stone and marble in its construction, is the one at Witly Court, the seat of Lord Dudley. This also has a roof constructed entirely of iron and glass. To come nearer home, I consider the conservatory at The Dales, Edgbaston, designed by the same architect as the last two I have mentioned, is one of the best examples of an architectural conservatory in the midlands, and I think it would be hard to find a glass building with such good features in its design, and at the same time to admit such a large amount of light. The conservatory at Highbury, the residence of the Right Hon. Joseph Chamberlain, M.P., is one of the best examples I know of—a Gothic conservatory of wood construction—and in my opinion both for appearance and utility this form of conservatory is the most satisfactory; but of course the design of the dwelling house to which it is attached always dictates to a large extent the type of any glass building you wish to attach; and there is no doubt that if the architect in designing will consult the wishes of the gardener there is no reason why a conservatory in any position and under circumstances should not be built for appearance, utility, and unqualified success.

Of fruit growing houses there are a great variety, and for each sort a different form of house under different conditions will do equally well. To commence with vineries, these can either be span-roofed, three-quarter span-roofed, or lean-to, or curvilinear; better span-roofed or lean-to. The first thing to decide upon in the erection of a vinery, and indeed any form of house for fruit, is the site. Now if a wall is available for building against, this wall should run east and west, and the vinery should be placed on the side of it facing the south. If it is a plain lean-to it is obvious that during that part of the year that the sun rises north of the east and sets north of the west the vinery would, of course, lose part of both early morning and late afternoon sun. To do away with this objection a three-quarter span house should be erected, and I think I can safely say that this form of vinery in this position will give the best results.

CONSTRUCTION.

With regard to the construction, wood is now most generally used, metallic houses having lost their popularity to a great extent. There has been a great deal said with reference to the merits of iron versus wood houses. Metallic houses are said to be very cold, although admitting a large amount of light, and they are said to expand and contract to such a degree as to break the glass. Wood houses have none of these objections, but they cannot be made so lightly as to the timber of the rafters, sash bars, &c., as metallic ones. In my opinion, for fruit growing purposes especially, a properly constructed metallic house is as conducive to good results as a wooden one, but it must be constructed in the very best manner in framing, and sashes with light copper sash bars, and providing that the heating apparatus is perfect the only real objection of these I have named—viz., that of cold, is non-existent. Any breakage of glass from expansion and contraction is simply a *prima facie* proof that the house is wrongly constructed, and I may say that a badly constructed metallic house is the worst form of house possible, and the existence in many gardens of houses of the type has tended to a great degree to condemn metallic houses as a class. To sum up, I consider in the following points wooden houses are excelled by metallic ones. Kept properly painted their wear is everlasting, while wooden ones are always liable to rot. They admit 25 per cent. more light, and have a cleaner and neater appearance. To support these arguments I believe I am right in naming the following metallic vineries, and which I believe answer their purpose admirably. The houses at Frogmore and Osborne, the vineries at Arundel, the seat of the Duke of Norfolk; those at Impney Manor, Droitwich; Penrhyn Castle, Bangor; Elvaston Castle, Derbyshire; Drayton Manor, near Tamworth; Hemel Grange, near Bromgrove; and Barford Hall, Warwickshire, the late Miss Rylands'. Of course I am perfectly aware that many more examples of wooden vineries bearing quite as good results could be given, and there is no doubt that equally good Grapes can be grown in either sort of house by gardeners who understand and take an interest in their work.

For early work the pitch should be steeper than for late Vines. Curvilinear houses are no better than ordinary roofs for growing purposes, and the choice between the two is only a matter of taste for the appearance. The interior fittings are very simple, and really only consist of the wiring, which should be strong and placed at about an average of 18 inches from the glass. For growing on the lateral system the wires should be strained horizontally on iron bearers, and for the spur system should be strained up each rafter.

The ventilation should be by opening front lights when there are any, and in the roof by a light hinged at the apex, or in houses where there are no front lights ventilation through the wall is desirable. The pipes should be placed about 2 feet 6 inches from the front wall, so as not to be too close to the Vines.

The houses just described as suitable for Vines will, with appropriate interior fittings, do equally well for Peaches. I think the most approved form of wiring for Peaches is by a table trellis about 6 feet wide in the front of the house, and upright wiring for growing on the back wall. Peaches can be grown very well indeed without heat under wall covers, and of these structures a great variety are made, and from their extreme simplicity and comparatively inexpensive nature they are, in a good situation, a very profitable form of horticultural building. I have heard one gardener say that in a house 100 feet long he had grown enough fruit in three seasons to pay for the cost of the structure, and this without any artificial heat.

A very useful form of tree cover is about 4 to 6 feet wide, with upright fronts to the height of about 7 or 8 feet, according to the back wall, and the roof to be made entirely of opening lights hinged at the back wall to open by machinery in long lengths so as to give ample ventilation. The front should also be made in lights, so that they can be taken off easily to give thorough exposure to the trees after the crop of fruit has been gathered. A cheaper form of wall cover is by a lean-to structure, the glass running in one plane from the top of the back wall on to a dwarf front wall, with roof lights at the top to open as previously described. Others are made with a cant—i.e., the same as the first one I described, only having the front sloping slightly towards the back wall instead of being vertical. All I think answer their purpose equally well, and the adoption of any one is only a matter of choice. While discussing wall covers, I will refer to the question of mechanical glazing without putty, as I think it has been applied to this class of horticultural structure more than any other, chiefly on account of their simplicity, and the large quantity of straight bars and glass of one size in their construction.

There are many patent systems of glazing. Each one of these has its own particular merits for railway station roofs and other kindred structures, but I think at least some of them [are not sufficiently draught tight for early forcing in horticultural structures. I consider that for growing houses the glass should be bedded in putty and secured in its place with copper sprigs, the rebate being painted down two coats after glazing. For conservatories, where a heavy moulded sash bar can be used, a keyed bar with top putty has a better appearance; but it is no use top putting a sash bar unless it has a key to hold the putty in its place and prevent the wet getting behind it.

(To be continued.)

LANDSCAPE GARDENING.

[Read at a meeting of the Cardiff Gardeners' Association by Mr. Kettlewell.]

(Concluded from page 261.)

PERFECT walks and drives should be dry, smooth, and hard during every season and in all weathers, otherwise the proprietor may be robbed of a good deal of enjoyment, comfort, and exercise in his garden; thus the formation of walks is a most important part of the practical work of landscape gardening, and much of the pleasure of a garden will depend upon how the walks are formed. To make a walk dry, eyeholes with gratings on the top should be built every 30 to 50 feet, according to the size of the walk or drive, in order that the surface water may drain off into these, and thence by means of a small branch pipe or rubble drain into the nearest common drain. The centre of the walk should be slightly raised in order that the surface water may drain into the eyeholes, which are built at the lowest points of the walk. This will render the walk, if suitable materials are used, as mentioned above, dry in all weathers. The best materials for forming the sides and bottoms of these eyeholes or lodges for water are ordinary bricks or flat tiles.

In order to judge the width of a walk the size and arrangement of a garden must be taken into consideration, straight walks being always wider than curved ones. From 6 to 10 or 12 feet will be about the general width of straight walks, including terrace walks, while from 5 to 8 feet the average width of curved walks. Drives vary from 10 to 16 feet in width, according to their length and object. The materials for a walk or drive should be composed of coarse gravel, clinkers, or any angular material to the depth of 12 to 15 inches, and then fine gravel to the depth of 3 inches. The rough gravel should be well beaten before the fine gravel is laid down, and the whole well rolled. One word more as to the verges or edgings of a walk. These should consist of sods cut about 9 inches thick and 12 inches in length and breadth, and should be laid along the margins, allowing 2 or 3 inches to pare off the top, and a similar amount off the sides next the walk. They make at once an excellently firm edging, and after they are laid the ground can be easily levelled down to them.

We now pass on to drainage, which is perhaps the most important operation, and really one of the first on a new place. No enjoyment can be obtained on undrained land, no plant will thrive where the land is not dry and porous, while the sun is unable to penetrate and sufficiently warm the soil which is saturated with water. As warmth and air are essential to the roots of plants and trees, drainage is always of primary importance in a naturally damp soil. In garden land, as well as any other kind of land, deep drainage has been proved to be the best, as the roots of trees, shrubs, and vegetables strike down so far into the ground that shallow drains impede their progress. In a close retentive subsoil 4 feet, however, is quite deep enough for any drain, and where the subsoil is sandy 3 feet is amply sufficient. Parallel straight lines 15 feet apart have been recommended as the most suitable method of draining heavy garden land, and I have also seen land herring-boned very successfully—that is with a main drain running down the centre, and branch drains running into it at rather an acute angle. A good fall for the main drain is important on account of the amount of water it has to carry away, and a good outlet absolutely essential. Tiles or pipes are generally used for garden drainage, varying in size according to the amount of water they have to carry away. These pipes should have flat stones or slate placed underneath them, and their sides filled with rubble in order to keep them in the right position, while over the top an inverted sod should be placed in order to prevent the soil from working into the drain and disturbing the fall of water.

The last subject, on the practical treatment of which I should like

to say a few words, is on planting, or as Mr. Loudon calls it, "operating with wood." Operating with wood is, I think, above all other subjects the one, as I said in the beginning of my paper, which must be left to the good taste and skill of the true landscape gardener. As every place requires different treatment, rules and principles are impossible to the foreground of the picture. Before planting, the ground should be trenched all over, bearing in mind the fact that trees or shrubs can hardly have too rich a soil. When the trees and shrubs have had their places allotted to them and the holes, which should be wider in circumference than the roots of the tree, have been dug to receive them, the roots and fibres should be carefully examined, and where injured scrupulously pruned with a sharp knife. As every root has its corresponding share of branches and foliage to supply, so much mutilation of the roots will bring about a corresponding sickness and even death. Not only is much injury caused to a tree by removing it carelessly out of the ground, but also in its reinsertion into the ground, by reason of the crushed and huddled state of its roots and fibres. The utmost care, therefore, is necessary in replanting, that the roots and fibres be preserved and carefully spread out, covering them with light fine soil, carefully but firmly treading the ground above them when the soil has nearly all been put back again. In planting specimen trees, each one should stand on a little hillock from 6 inches to a foot high, as this plan has the advantage not only of throwing out the proportions of the plant better, but also of draining it better, and bringing the roots more within reach of air. As regards the best time of year for planting, it would be waste of time for me to tell you, as you all know the conditions under which the moving of trees or shrubs is most successful. I would only say, that without it was absolutely essential, I should never plant (1) if the sun were shining brightly, (2) if the atmosphere were dry, (3) if the ground were frosty. As to the selection of trees or shrubs I should take into consideration the nature of the subsoil where they are to be placed, and should endeavour as far as possible to obtain the plants from nurseries where they have been grown (1) in a poorer soil, (2) where they have been transplanted often, so that the plants should be well furnished with fibrous roots, hardy, and rather stunted in growth. These, when transplanted in a richer soil and under favourable conditions, will prove the most beautiful and perfect in shape and growth.

ROYAL HORTICULTURAL SOCIETY.

MARCH 25TH.

SCIENTIFIC COMMITTEE.—Present—D. Morris, Esq., in the chair; M. Henry de Vilmorin, ex-President Botanical Society of France; Messrs. Blandford, MacLachlan, Wilson, Rev. W. Wilks, and Dr. Masters.

Figs.—Branches were exhibited covered with a brown scale, which the sender said had proved very injurious. The remedy suggested was to scrub the branches with a hard brush and soapsuds. The specimens were further referred to Mr. MacLachlan for examination and report. Other branches of Fig in a dying condition were apparently free from parasites, and their condition betokened some mischief at the root.

Iris sindjarensis.—A plant of this was exhibited by Messrs. Barr and Son, and received a botanical certificate. M. de Vilmorin pointed out its resemblance to *Iris orchidacea*.

St. Helena Ebony.—Mr. Morris alluded to the peculiar vegetation of St. Helena, now confined, for the most part, to a small area in the central and higher part of the island. Many of the trees formerly native to the island are now all but, or quite, extinct. Among them is a species of *Trochetia*, or *Melhania*. The trunks of this tree are embedded in the cliffs of the island, and are dug out by the inhabitants for the sake of manufacturing ornaments. The following quotations from Melliss' exhaustive work on St. Helena refers to this plant:—"The native Ebony of St. Helena.—This plant I believe to be now extinct. It formerly grew on the outer portions of the island, near the coast, at altitudes of 2 to 4, where the weather-beaten stems are still found deeply embedded in the surface soil. The last plant I saw was a small one growing in the garden at Oakbank, about twenty-five years ago, but it is not there now, and I have searched the whole island over for another, but in vain. The leaves were dark green, and the flowers white; the wood is very hard, heavy, black in colour, and extremely brittle. It is still collected and turned into ornaments, which are much prized on account of its rarity. That this tree once formed a considerable portion of the vegetation clothing the island on those parts that are now quite barren, is strongly evidenced by the many references to it in the local records. Pl. 29. It is the *Dombeya erythroxyton* of Andr., *Bot. Repos.*, vi., t. 339, not of Willdenow."

It is interesting to know that the plant is still in existence under cultivation at Kew (and perhaps elsewhere) under the name of *Dombeya erythroxyton*. At the present time the plant, which was obtained from the gardens at Herrenhausen, is in flower at Kew.

Mr. MacLachlan called attention to the interesting remark on the rare plants of St. Helena, contained in Mr. Wollaston's book on the "Coleoptera of the Atlantic Islands."

Fingered Citrons.—Dr. Masters showed a drawing of a fruit that

had ripened in the garden of Mr. Hanbury at La Mortola, near Ventimiglia, and made some comments on the peculiarities of its structure. M. de Vilmorin said that similar malformations occurred in other Oranges, especially in the Bitter Orange, the flowers of which were used in perfumery, and in which the carpels might be seen occasionally in all stages of dissociation.

Sport of Narcissus.—From Mr. Walker came one bulb producing two distinct flowers—viz., Silver Phoenix and *N. incomparabilis* fl.-pl. The specimen was referred to Dr. Masters for further examination.

Florida Pine.—From Mr. Divers came a cone of *Pinus eubensis* (Elliotti), and one of *P. inops* var. *clausa*, just brought home from Florida. Mr. Morris spoke of the wood of the Cuban Pine as being very hard, and said that many colonies were now importing soft wood, not that their own forests were destroyed, but because the timber yielded by them was too hard to be used profitably. M. de Vilmorin pointed out the difference between the typical *Pinus inops* and the specimen exhibited.

THE JAPAN QUINCE (CYDONIA OR PYRUS JAPONICA).

THE common scarlet flowering variety of the so-called Japan Quince is said to have been introduced into English gardens in 1815, and a few years later into those of this country. Authorities differ in their opinions as regards the proper position this plant should hold in the Rosaceae, or great Rose family. Some consider it so nearly allied to the common Quince (*Cydonia vulgaris*) that it should be placed in the same genus; others believe it more nearly related to the Pear and Apple, hence should be classed among the *Pirus* or *Pyrus*, as both forms of spelling the word are about equally popular and common in botanical works and plant catalogues. But whatever its generic name, the Japan Quince must long remain a very popular ornamental shrub, increasing in the estimation of all lovers of showy plants as new varieties are introduced and disseminated. The first species or variety introduced from Japan has dark scarlet flowers, and it is probably the same one now most common in gardens. Later a variety with pale rose or pinkish flowers was introduced under the name of *Cydonia chinensis*, as it was supposed at the time to be a distinct species, and a native of China, but it is now known to be only a variety of the first, and not specifically distinct. Soon after a semi-double scarlet variety was introduced, and this is also common in nurseries and private gardens. For a number of years these three varieties were the only ones offered in nurserymen's catalogues, but in the past two decades a large number have been added to the list, and while the range in colour of the flowers is not so great as in some other genera of cultivated plants, still it is sufficient to warrant the assertion that the Japan Quince is one of the most showy and desirable deciduous shrubs in cultivation. They vary greatly in habit, but are mostly many-stemmed, thorny shrubs, growing 5 to 6 feet high. The flowers, as in the Apple and Pear, are produced on short spurs, growing from the stems and older branches, and rarely on wood less than two or three years old. The fruit of the species and older varieties is of a roundish form, about 1 inch in diameter, often ribbed or sutured, greenish yellow when ripe, very acid, flesh firm but with no grittiness, and agreeably perfumed. It has long been considered by pomologists as utterly worthless, and not edible even when cooked, but exceptions to this rule are known, and others are likely to occur as new varieties are produced. That the fruit is susceptible of great improvement is indicated in its variableness in the different varieties in cultivation. The habits of the plants are also variable; some are low-growing and dwarfish, others slender and upright; some are armed with an immense number of strong and sharp thorns; others are smooth stemmed and almost as free from them as a Willow. The great difference in the size of the fruit is shown in the following varieties:—No. 1 is from the common scarlet, while No. 2 is a medium-sized fruit of *C. grandiflora*, or the "large flowering." The flowers are pale pink, somewhat blotched with white. The plant is a low-growing shrub with a spreading habit, but wonderfully productive. Fruit when ripe, green, spotted with small pink dots. No. 3, Sunray, flower pure bright salmon colour, each petal with a smooth margin, and elevated from the calyx on a slender stem-like base, giving to the flower a deep cup-like shape. Fruit of the form shown, resembling in shape certain varieties of the Lemon. The skin is a deep lemon-yellow, without spots or blemishes, and feels to the touch as though it had been oiled. No. 4 is from an unnamed seedling with pink flowers, only remarkable on account of its russet fruit. The original plant produced about a half peck of fruit this season all of the same form and size, with skin thickly covered with dark brown russet. No. 5 is from a seedling of *grandiflora*, and while in habit of plant, colour, and size of flowers it is identical with its parent, still the fruit is distinct, and it is merely introduced here to show that the fruit is a character worthy of attention when attempting to distinguish closely related varieties.

Among these newer varieties the one known in some nurserymen's catalogues as *C. simplex alba* is perhaps the best white, as there is no tinge of colour in the flowers. *C. Maulei* is probably the best of the light scarlets. The fruit is very ornamental, as it assumes a bright golden colour long before it is mature. *C. tricolor* is a beautiful variegated-leaved variety with pale scarlet flowers, but unfortunately a feeble grower on its own roots, though moderately vigorous when grafted on Paradise Apple stocks. *C. Gaujardi* is a beautiful variety with orange-red flowers. The plant is of a low, spreading habit, with vigorous and almost thornless branches. Many other varieties are described in

nurserymen's catalogues, to which it is unnecessary to refer, for my object in writing is not so much to encourage the purchase of a great variety as it is to raise them from seed. With a half-dozen of the very best as stock plants, anyone so inclined can raise an unlimited number of varieties by annually saving and sowing the seed, and, when the plants are a year old, transplant into rows, and cultivate them as an ornamental hedge. It requires no great amount of skill or care to raise the seedlings, and there is always a chance of producing something better than is on the market, besides knowing that what you have raised is all your own, and that you are not greatly indebted to others for the plants, whether good or bad. All that is necessary to raise seedlings and new varieties is to gather the fruit when ripe in autumn, and spread it out in the house until it begins to shrivel and soften, then cut it open and remove the seeds. The seeds will, no doubt, grow if kept dry over winter, but my practice has been to take a large flower-pot or box with a hole in the bottom for drainage, then fill with seed and moist sand well mixed, after which bury the vessel on the north side of some building or board fence, covering about 1 foot deep. Early in spring sow the seed and sand together in drills in the garden. The plants will usually grow 6 to 12 inches high the first season, and the following spring they should be transplanted into nursery or hedge rows, and given the same cultivation as those raised from cuttings of the roots, layers, or other modes of propagation. Some of the plants may bloom the third season, others not until four or five years old, but whenever they do bloom we are sure to find some among them that will interest us. I have followed this mode of propagation of the Japan Quince for a number of years, and must confess that the results have been eminently satisfactory, for there seems to be no end to the variations in seedling plants. Should a unique and valuable variety be produced, it may be readily propagated by layers, cuttings of the wood and roots, or by budding and grafting upon Paradise Apple stocks, or those of our native Crab App'e. The common Pear and Apple appear to grow too rapidly, and the union is seldom perfect or very lasting, although there is no difficulty in making the wood of the Quince unite temporarily with either.—(*American Agriculturist.*)

GLASGOW SPRING SHOW.

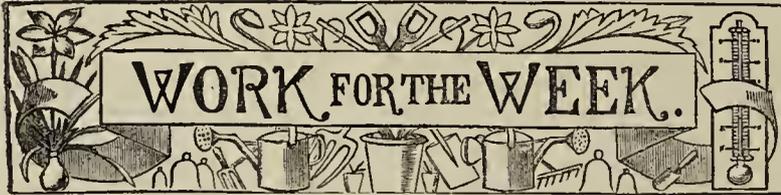
THE spring Show of this Society was held in the City Hall on Wednesday, March 26th. The weather was not of the best, some heavy showers marring, as it always does, the attendance and consequent success of the Show from a financial point of view. The patronage under the circumstances, however, was very good, particularly in the afternoon and evening. The electric light is a vast improvement for showing the true colours of the flowers, such trying shades as blue and violet coming out as distinct as at noonday. What was wanted most was some greenery to tone down the great mass of colour with which the tables were loaded. Hyacinths were well shown, comparing favourably with former years. Nurserymen were represented by two collections of eighteen distinct varieties, Mr. John Sutherland having the best. The same exhibitor was also first for twelve table plants. Messrs. Smith & Simons were successful with hardy Rhododendrons. This firm had a large collection of spring flowering plants, especially Azaleas. The platform was decorated by the Messrs. Austin and MeAslan. Spring flowering shrubs were well represented, and a few Orchids were included. Mrs. Paterson, Buchanan Street, was awarded a first class certificate of merit for floral exhibits of wreaths, baskets, bouquets, sprays, and crosses, a large Ionic cross being most artistic.

Mr. Hugh Millar, Auchencraigh, Bothwell, had chief honours in the gardeners' class for Hyacinths, twelve distinct varieties, six being doubles. Mr. Carnegie, Gartshore Gardens, Kirkintilloch, was a good second in these classes, and had first for six singles. Mr. Hugh Millar had also the best Cinerarias and Narcissus. Tulips were admirably shown by Mr. Heron, Pollok Gardens, Pollokshaws, and this is the thirteenth year consecutively in which he has had the premier award. The only collection of plants came from Murcier House (gardener Mr. Geo. Meston), a first prize was deservedly awarded. Orchids were the best feature of this group, some Dendrobiums and Odontoglossums peeping out from a carpet of Maidenhair Ferns. Three collections of specimen Orchids were shown. Mr. D. McKenzie, Muirena Gardens, Cathcart, had first place for small but well flowered plants of *Cypripedium villosum*, *Cattleya Trianae*, and *Cœlogyne cristata*. Mr. D. Wilson, Westmount, Kelvin-side, was second, having a well flowered plant of *Dendrobium nobile*, *Odontoglossum Edwardi* with three good spikes, and the beautiful *Cymbidium eburneum*. Mr. Geo. Meston was third, *Dendrobium crassinode Barberianum* being his best plant. Mr. Jas. Spiers, Violet Bank, Langside, had the best stove and greenhouse plants and specimen Azaleas, although these were not up to the standard of former years. Azaleas in 8-inch pots were creditably shown by Mr. Jas. Millar, Castlemilk Gardens, Rutherglen. Dinner table plants were largely shown, Mr. D. V. Agnew, Asgog, Bute, being an easy winner; his plants were splendidly coloured and medium in size, *Crotons Weissmani* and elegantissima, *Pandanus Veitchi*, *Aralia Veitchi*, *Dracena nigra rubra*, and *Cocos Weddelliana* were included. Deutzias were numerous and well grown; Mr. D. Wilson had the best specimen, a moderate sized but densely flowered plant. The best Palm, a fine plant of *Kentia Belmoreana*, came from the same gentleman. Mr. Jas. Millar, Castlemilk, had the best Cyclamens, and of the two collections of vegetables staged Mr. Millar's was decidedly the best. Alpines in pots are always admired when well done. Mr. Meiklem, Alpine Cottage, Bridge of Weir, had first prize with *Primula nivalis*;

P. viscosa, *Erica cernna*, *Chionodoxa Luciliae*. Baskets of spring flowering plants were shown packed very much as if they were going a long journey, the first prize basket of Mr. J. Millar excepted. Mr. J. Millar had also the first prize for *Amaryllis*.

In the gardeners' class hardy *Rhododendrons* were grandly shown by W. Carnegie, Gartshore Gardens, as were the cut trusses which came from the same gentleman. Amateurs made a creditable display, Mr. A. Blackley, High Blantyre, showing three greenhouse plants, one *Azalea*, one *Deutzia*, and gaining first in each of these classes. Mr. Meiklem, Bridge of Weir, had the best *Hyacinths* in pots. Miss M. B. McIntosh, 2, Firpark Terrace, Dennistown, had the best three *Hyacinths* grown entirely in water, and the best two pots of Dutch bulbs in bloom. In the class confined to ladies, Mrs. Carnegie, Gartshore, had the first honours, closely followed by Miss McIntosh and Miss Sutherland Lenzie.

Mr. Franc Gibb Dougall, superintended the arrangements, which were very satisfactory.—KELVINGROVE.



FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest Forced Trees.*—Allow the trees time during the stoning process, maintaining the temperature at 60° to 65° at night, 70° to 75° by day with sun heat, and about 65° by day in dull weather, carefully avoiding sudden fluctuations or depressions. Tie the shoots to the trellis as they advance, and regulate the growths for future bearing, so as not to have them too crowded, as by giving the shoots plenty of room the fruit is better exposed to the sun and air, and the wood for another year is stouter and better ripened. Shoots disposed to grow more than 14 inches may have the points pinched out. Those remarks do not apply to extensions. When the stoning process is over, which may be ascertained by testing a few fruits with a knife, the fruit will require regulating for the swelling-off period. Very vigorous trees may be allowed to carry a few more than those that are weakly, but on no account unnecessarily tax the trees with more fruit than can be brought to maturity without prejudicing future crops. Weakly trees should be supplied with liquid manure, and the inside border in any case must be kept properly supplied with water, mulching the surface with partially decayed manure. This will secure more uniform moisture, and the fruit will swell to a good size. The temperature may be increased to 65° to 70° at night, and in the day 70° to 75°, maintaining 80° to 85° or 90° through the day from sun heat. Ventilate from 75°, and close early with plenty of atmospheric moisture. Very early varieties as *Alexander*, *Waterloo*, and *Early Beatrice* will soon give signs of ripening, when syringing must cease, and the leaves that shade the fruit or overhang it must be drawn aside, and the fruit if necessary raised on laths across the wires of the trellis, so that its apex will be placed directly to the light.

Trees Started at the New Year.—The fruit has swelled indifferently in some cases. Stoning will soon commence. Care should be taken to prevent sudden checks by injudicious ventilation, cold air in the daytime and too high a temperature at night being fatal. Rest content with a night temperature of 60° to 65°, 5° less on cold nights and 65° by day in dull weather, with 70° to 75° from sun heat. See that there is no deficiency of moisture in the borders; if it is at all dry afford a thorough supply of water or liquid manure.

Trees Started Early in February.—These, for some unaccountable reason, are later than usual, but the set and swelling are so far satisfactory. Syringing must be practised morning and afternoon, which will assist the trees to shed the remains of the flowers, and prevent attacks of red spider and aphides; but avoid heavy syringings, an occasional one being all that is needed until the foliage is more advanced. Allow a night temperature of 55° or 60° in mild weather, ventilating from 65°, permitting an advance from sun heat to 70° or 75°, but with full ventilation.

Disbudding.—This requires to be done with care and judgment, commencing early—as soon as the roots can be displaced with the finger, and be followed up day by day until only the shoots required for future bearing, attracting the sap to the fruits, or extension are retained—namely, one from the base of the shoots now fruiting and another on a level with or above the fruit; the latter not being required for extension should be stopped at a few joints of growth. In the case of trees not fully grown it will be necessary to leave shoots about 15 inches apart, calculating from the base on last year's growth to form the bearing wood of next year, the terminals being trained in their full length as space permits. Closer training is often practised, resulting in weak overcrowded growth, not nearly so satisfactory as growth fully exposed to light and air.

Thinning the Fruits.—Commence as soon as it is fairly set, removing the smallest first and those on the under side of the trellis, beginning with the weakest part of the trees, thinning proportionately less on

strong than on weak wood, which will tend to the equalisation of the vigour of the tree. The fruit ought not ultimately to be left closer than one to every square foot of trellis covered with growth, but Nectarines being a smaller fruit may have one to every 9 inches square of trellis covered by the trees. The first thinning should be commenced when the fruit is the size of horse beans, the second when the size of marbles, when very few more will be left than is required for the crop, looking over the trees again when the fruit is the size of walnuts, and very few indeed over the intended crop should be left, though there must always be a margin for casualties.

Syringing.—All the trees not in flower should be syringed twice a day when the weather is bright, so as to keep down red spider and other insect pests. The afternoon syringing should be done at closing time, so as to have the foliage dry or nearly so before night. If the trees have water hanging on them in the morning omit the afternoon syringing. This, however, will only be required with very vigorous trees. Allowing water to hang on the trees for any length of time destroys their tissue and has a weakening tendency.

Tying-in the Growths.—This should be attended to early, as it requires to be done carefully so as not to bring the shoots down too sharply, yet it is necessary that it be done; indeed, it is of the utmost importance where symmetrical training is considered, and in securing the shoots to the trellis sufficient space must be left in the ligatures for the swelling of the shoots.

Trees Started Early in March.—With trees in full flower syringing must cease; indeed, it should not be practised after the anthers show clear of the corolla, but a genial condition of the atmosphere should be secured by damping available surfaces in the morning and early afternoon. Prevent a close vitiated atmosphere by admitting a little air constantly by the top ventilators. The night temperature should be 50°, falling 5° or more through the night in severe weather, 50° to 55° by day and 65° from sun heat. The inside border must not lack moisture.

Latest Houses.—The flowers are opening, and as they are abundant thin them well on the under side of the shoots. Shake the trees daily from the first pollen ripening until the last of the blossom needs attention, selecting the early part of fine days where artificial impregnation is resorted to, and it is a capital plan to dust every blossom when the pollen is ripe with a camel's-hair brush, feather, or some other light substance. Any trees deficient of pollen should have some taken from those that afford it plentifully, as the small-flowered varieties usually do. The temperature should be maintained at 40° to 45° at night, 50° to 55° by day, in all cases accompanied by slight ventilation at the top of the house, which must be increased when the temperature reaches 50°, and full at 65°.

Unheated Houses.—The buds are fast expanding. Keep the house as cool as possible by free ventilation. Ventilate after the flowers expand, at 50°, and do not allow an advance above 65° without full ventilation both top and bottom, and close the house at 65° when there is a prospect of frost at night, but leave on a little air to allow of moisture escaping. In mild weather leave the ventilators open when the temperature is over 50°. Where there is a superabundance of flower buds remove those on the under side of the trellis.

FIGS.—*Earliest Forced Trees in Pots.*—The fruits of *Early Violet*, *Early Prolific*, and similar kinds will soon commence ripening, when the supply of water must be gradually reduced, and withhold moisture from the atmosphere, admitting air by the top lights constantly. Continue to afford liquid manure to those trees swelling their fruits, and syringe the trees at closing time, ventilating freely in favourable weather.

Early Forced Planted-out Trees.—No fruit tree produces surface roots so freely as the Fig if means are adopted to encourage them. A mulching of about 3 inches thickness of partially decayed manure will attract the roots to the surface, and prove beneficial if kept moist. Liberal supplies of water or liquid manure will be necessary to assist in swelling the fruits satisfactorily. Continue to pinch out the points of the shoots, and thin all crowded growths. No kind of tree is more benefited than the Fig by the full rays of the sun. Shading of any kind, even too much of their own foliage, is injurious. The temperature must now be increased to 60° to 65° at night, and in the daytime from 75° to 80° with sun heat. Attend to tying in the shoots, allowing space for growth.

Raising Young Trees.—If it be desired to increase the stock, cuttings may be inserted, selecting shoots about 6 inches long, taking them off with a heel or portion of last year's wood attached. They strike readily in bottom heat. They are best inserted singly in 3-inch pots. When rooted shift without much delay into 5-inch pots, and when they fill that size with roots transfer to 12-inch pots. Good drainage is necessary. Turfy loam with a sixth part of old mortar rubbish and a fifth of decayed manure forms a suitable compost, potting firmly.

KITCHEN GARDEN.

AUTUMN SOWN ONIONS.—The winter has been very favourable for these. Part of the young plants should be transplanted now, and the others left to bulb where they were sown. These will be the first ready for use, but the others will form the largest bulbs if grown in deep rich soil. Soot is beneficial to them and distasteful to grubs. We plant in rows 1 foot apart, and 4 inches from plant to plant, with the intention of pulling up every alternate one for use before they have gained their full size. After planting tread along each side of the row to make the soil firm, as this induces the plants to bulb early.

SOWING BROCCOLI.—Seed may now be sown of varieties that will give a succession from November until May. Veitch's Self-protecting Autumn is our earliest, Sutton's Queen the latest, and the intermediate consist of Oshorn's, Snow's, Leamington, Cattell's Eclipse, and one or two others. The seed may be sown in rows or broadcast, the soil should be rich, and the position open for producing sturdy plants.

DWARF KIDNEY BEANS.—Those in pots are now hearing freely, but in this stage are apt to be infested with red spider, and are therefore better out of vinerics. Give abundance of water; liquid manure will also benefit the plants. It will be a long time until plants bear in the open air, therefore one or two more sowings should be made under glass.

PEAS.—Those raised under glass and well hardened should, when the weather is favourable, be transferred to the open ground. Disturb the roots as little as possible, the secret of success being not to check them in any way. Plant them in the most sheltered part of the garden, surround the roots with soil in which they are sure to grow freely at once, and immediately after planting stake them for shelter, but not so closely as to shade them from sun. Main crop Peas sown now will pod in July, and as the weather may be hot and dry then it is often advisable to sow in trenches.

GLOBE ARTICHOKE.—These are much valued in some gardens, and we find them extremely useful from midsummer until late in autumn. Old plants have wintered well. Some good manure should be forked round the plants. Last season our old plants were over by September, but those transplanted gave heads until December.

YOUNG VEGETABLES UNDER GLASS.—Early in April is usually a good time for transferring Cauliflowers, Lettuce, Brussels Sprouts, &c., to the open ground, but they must be duly hardened before undergoing this change. These crops will prove exceedingly useful, and they merit the most careful attention.

RADISH.—These are one of the first crops to gain maturity in the open ground, and from now onwards a small bed of seed may be sown every fortnight. Birds are particularly fond of Radish seed, and it may be necessary to net the beds until the plants are well in leaf.

CARROTS AND POTATOES IN FRAMES.—Potatoes are fast gaining maturity. When advanced they are much benefited by liberal ventilation, so long as it is not given to produce a check. It is unsafe to leave them exposed at night, as a few degrees of frost would ruin them. Early Carrots must be thinned to prevent crowding. If they are 2 inches apart small yet useful roots will form, and when some of them are drawn out then the others will have sufficient room. Do not allow them to suffer by want of water.

STIMULANTS FOR ASPARAGUS.—A sprinkling of salt, soot, or guano may be given to the surface of Asparagus beds at the present time with great advantage.

PLANT HOUSES.

Zonal Pelargoniums.—Cuttings may now be rooted for flowering during the autumn and winter. Select sturdy shoots, and insert them singly in small pots. They will root freely in any position where the temperature ranges about 60°. Do not insert small weakly cuttings. These are much better on the stock plants until they grow and gain strength. Do not let these draw up weakly in a shady place or in too much heat. They will grow sturdily in a temperature of 55° if fully exposed to light and a little air is admitted to them daily. If the old plants have been in their pots for a long time give a pinch of artificial manure on the surface of the soil. This will induce vigorous growth. Strong cuttings that have been rooted in small pots will soon flower if placed in 4½-inch pots and stood close to the glass in a temperature of 50° to 55°. They draw up weakly in too much heat, and the trusses are small in comparison to those allowed to develop gradually.

Clematis indivisa lobata.—Where this has flowered and the plant has covered the space allotted to it, the shoots that have flowered may be well pruned. Nothing is gained by allowing the plant to become crowded, but the reverse. The shoots should be trained thinly and fully exposed to the sun. A free use of the knife will induce the formation of robust growth, which should be encouraged, for on these next season's flowers will depend. This is a very effective and useful climber for the conservatory as well as the coolest structures. If the plant is infested with scale, syringe with a solution of petroleum and water at the rate of one ounce to the gallon. It is liable to the attacks of aphides, which are best destroyed by fumigating with tobacco. If the plant is confined at its roots, remove a portion of the surface soil and top-dress with equal portions of loam and decayed manure. A little artificial manure sprinkled over the surface before the top-dressing is placed on will induce the roots to come to the surface.

Greenhouse Rhododendrons.—These may be produced in succession by gentle forcing. On no account should they be hurried, or the flowers will fail to develop. The house in which they are forced may be kept moderately close and moist; no more artificial heat should be used than is necessary to maintain a night temperature of 50°. The syringe should be used freely to keep thrips in check, in fact these plants may be syringed from the time they show signs of movement. A dry base for the pots to stand upon, and dry atmospheric conditions, are detrimental to these plants. They should have a cool moist base, and should never be allowed to become dry at their roots. Any shoots that are not flowering may as soon as they burst into growth have the young shoot pinched out. This will induce them to make two or more shoots, the same as those that flower. The main stock of plants that are not wanted in flower may have cool airy treatment. For covering walls that

are exposed to the sun Rhododendrons Gibsoni and Princess Royal are invaluable.

Daphne indica.—These succeed well if given the treatment advised for greenhouse Rhododendrons, in fact they should be grown in the same structure, and with care good specimens may be produced. These, like the above, are often ruined by the atmospheric conditions to which they are exposed. If they are too hurriedly forced into flower more harm than good results. These plants cannot long endure a close confined atmosphere. Liberal syringings they enjoy as well as abundance of air. No harm is done by closing the house early in the afternoon during the season of active growth. They should be fully exposed to the sun and watered with the greatest care. They should never be allowed to become dry, and, on the other hand, if they are overwatered and the soil rendered sour failure is certain to result. Any plants that need potting should be attended to at once. Drain the pots carefully and liberally; over the drainage a layer of moss must be spread before any of the soil is placed in. Perfect drainage must be insured. The soil may consist of good fibry loam, one-seventh of decayed manure passed through a fine sieve, and coarse sand—a liberal quantity of the latter should be used, and press the soil firmly into the pots. Plants that are in good condition at their roots and are straggling through neglect may be well cut back. They will break freely, and in two years make healthy flowering plants. Shoots that fail to flower must have their points removed just previous to flowering, then the whole of the shoots start into growth at the same time.

Daphne Mezereum.—This is beautiful in pots for flowering indoors early in the season, and for this purpose should be grown in pots the whole season. When the plants are lifted annually from the outside and placed in pots for forcing a good stock of plants is necessary. When once the plants are established in pots they grow freely afterwards and flower profusely every season; all the attention then that is needed after flowering is to harden the plants carefully and plunge them outside.

THE BEE-KEEPER.

NOTES ON BEES.

THE weather is still backward for bees; they are, however, advancing, and many hives are well forward with worker brood, and drones are being brought forward in considerable numbers, but not to the injury of the hive. The mild season, together with the hives having abundance of stores, is the sole and direct cause. Unfed hives are the most advanced. The Gooseberry bushes will be in flower in a few days, and should the weather be favourable bees will be in a fit state for swarming early in the season. The majority will be allowed to swarm; after manipulations will prepare them for the Heather.

THE PUNIC BEE.

This is becoming more and more interesting as the year advances, working at times when no other bee is abroad, and so hardy do they seem that they are a marked contrast to the Syrians, which are as eager workers, but their tenderness is a defect.

FEEDING.

Although the weather may be fine this must not be overlooked. The great numbers of hatching brood demand large supplies, much larger than are generally obtained during the month of April.

ARTIFICIAL POLLEN.

The supply of this should not be neglected if the weather turns unfavourable; giving it inside the hive prevents the tear and wear on the bees, necessitated when they have to go outside for it. Have it rather thin than too thick, and see at all times that the honey the peameal is mixed with has been taken from a healthy hive. If medicated food is an advantage then Mr. Wm. Hogg's method of medicating the pea meal is far ahead of medicating the syrup, as it goes direct to the brood, which are those that take the disease.

CAUSES OF FOUL BROOD.

It is many years since foul brood appeared in any of my hives. This immunity is entirely owing to my system of thorough ventilation at all times, whether it be in the apiary or when in transit. Crowding the bees into little space at one time, and then "spreading

the brood," are two prime causes of the disease. Overheating in a humid atmosphere acts upon the pollen in such a manner as to incite the disease readily into the most virulent form, and the queen has to suffer all the inconvenience of an overheated hive. It is probable the eggs in her ovaries nearly ready for hatching may be rendered fit to start the disease through loss of stamina and a weakened constitution. Overheating doubtless brings on foul brood, and so does kept unsealed honey when supplied to bees. The beginner should, therefore, become fully impressed with these facts, avoiding both to the fullest extent by using as an antidote the means that were never known to propagate foul brood nor to harbour it.

DEATH OF A SUCCESSFUL BEE-KEEPER.

The Rev. A. McLaren, D.D., died at his residence, Houston Manse, on Sunday, 23rd March, in his 60th year, leaving a widow and three sons. Mr. McLaren was of a kind and affable disposition. He took a great interest in all that tended to the welfare of the parish and parishioners. The parish of which he has been minister for thirty years, and also Chairman to the Parochial Board, will lament his loss. As a bee-keeper few surpassed him. His successes have been given from time to time in these pages, and he was amongst the first to discover the superiority of the Ligurian bee and its crosses. He was a great advocate of the Stewarton hive, and a visit to his apiary during the honey season could not fail to convince the most sceptical of its superiority. All the work of the apiary and the garden, which were kept scrupulously neat, was performed by himself. During the last year he contributed a series of practical articles on bee-keeping to the *Evening Times*, which were received generally with much acceptance. His mode of encouraging bee-keeping amongst the working classes was to present them with bees and visit their apiaries, giving advice as required.—A LANARKSHIRE BEE-KEEPER.

ORIGIN OF MOVEABLE FRAME HIVES.

IN reply to a request for information on this subject we cite what appears relevant from "The Apiary."* From "time immemorial" there have existed bar hives; indeed, they have been traced to the ribbed carcase of Samson's lion. But in most cases the bars were not moveable—they were simply designed to aid the purpose of keeping an upper storey in some degree clear of the queens intermeddling. And even when they were capable of removal they added but a slight step in advance, and the credit of the inventions of Golding in England and Dzierzon in Germany is due, not to the bars themselves, but to their mode of affixing, and especially to the guide-comb attached beneath. At about the same date with these there appeared a Russian hive known as the Propokovitsch, which consisted in an arrangement of several storeys of frames inserted endways and resting on cross pieces below them. Thus one invention supplied bars without frames, while the other offered frames without bars. But the right idea has now been caught, and it is not surprising that several apiarists, independently and simultaneously, were engaged at this period in working it out.

Briefly summarised the sequel is as follows:—In 1841 our own countryman, Major Munn, obtained a patent in France for his moveable bar-and-frame hive, of which he published a description in England in 1844; in America in 1851 Mr. Langstroth completed the invention of his moveable bar frames; and in Germany in 1853 Baron von Berlepsch by a distinct inventive process added the frames to Dzierzon's bars. Thus England appears after all to possess the honour of the contrivance, although we certainly proved the last to make of it any general or extensive use. Major Munn's original hive opened at the back, and when in 1851 he reappeared in print with a hive opening at the top he had altered the frames (and hive too) from oblong to triangular. Probably one reason of the invention's failure was the expensiveness of the Major's fittings, which are such as to make the hive appear in his engravings more like some astronomical instrument than a box for bees and honey. Be this as it may there was practically no such thing as a frame hive in use in England till 1860, when Mr. Tegetmeier was the means of reintroducing it—whether from Germany or America we are not quite sure. The German hives, however, open at the end, while Mr. Langstroth's are like our own, so that whoever was the inventor of bar-frame hives the hive of English apiarists comes nearer to this gentleman's than to that of anyone else. Mr. Woodbury it was who afterwards brought out the frame hive which met with the first general acceptance in this country.

* By Alfred Neighbour, published by Kent & Co., Paternoster Row.

TRADE CATALOGUES RECEIVED.

- W. H. Hudson, Tottenham, London.—*Catalogue of Japanese Lilies.*
- J. Cheal & Sons, Lowfield Nurseries, Crawley.—*Catalogue of Dahlias.*
- Rawlings Brothers, Old Church, Romford, Essex.—*Catalogue of Dahlias.*
- William Paul & Co., Bridge of Weir, N.B.—*List of Pansies and Pinks.*
- L. Jacob Makoy & Cie, Liège, Belgium.—*List of New Plants.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Celery (Reader).—Wright's Grove White grows thrice the size of Sandringham, and consequently requires more space for affording sufficient soil for earthing. The smaller variety usually keeps much better than the other for spring use.

Cyclamens (A. H. S.).—The Cyclamen flowers do not possess any distinct character. They represent an ordinary strain, and if you visit any of the London shows or meetings in the spring you would see many plants with much larger flowers and richer colours.

Chicory (H. T. H.).—Chicory is grown practically the same as Parsnips, by sowing the seed in deeply worked fertile but not freshly manured ground towards the end of the present month or early in May. After writing you would perhaps see our reply on the subject to a correspondent on page 270 last week. If you desire any further particulars, and indicate their nature, your letter shall have our attention.

Salad Plants (H. R. W.).—If you send us a list of what you have obtained we will tell you what we know about the plants and their cultivation. We cannot give translations of names that are not before us. We are not free to publish Mr. Vilmorin's paper as read at a meeting of the Royal Horticultural Society, all papers read there being reserved for publication in the Society's Journal for distribution among the Fellows. We shall be glad to nominate you if you would like to join the Society and share in the privileges to which Fellows are entitled. Vol. xii. of the Journal is just issued. It contains the papers that were read at the Vegetable and Chrysanthemum Conferences, salad plants being enumerated in the vegetable department. The price to non-Fellows is 5s.

Disbudding Vines (M. N. O.).—Remove weak growths. When the laterals are firmly established in position and no longer liable to be broken in securing them to the wires, these laterals being about 18 inches apart, no fresh growths will be required between them, and it will be better for the Vines if there is none. Much harm is done by having too many growths from the main rods of Vines, this preventing the due expansion of the foliage, and when the leaves cannot develop under the full influence of light they cannot elaborate the crude sap supplied by the roots and store nutriment for the support of the Vines. Future growths are produced from the buds at the base of existing laterals after these are pruned in the ordinary course. It is desirable to make sure of the safety of the permanent laterals before removing all the superfluous growths.

Ferns for Cutting (W. R.).—If the majority of the fronds have been cut the plants may now be trimmed, repotted, and placed in heat. Pots 5 or 6 inches in diameter are the most suitable size, and if the roots have filled the pots the plants can be divided and again potted in the sizes named. One of the best systems of growing Adiantums and Davallias for supplying fronds for cutting is to place a good number of plants in wire baskets 8 inches in diameter. It is often difficult to find stage room for as many Ferns as are required for this purpose, but when grown in baskets they can be suspended at the back of vineries, or in any position where shade from bright sunshine and free ventilation can be given. This is the best of all plans by which a bountiful supply of fronds can be produced with a minimum of labour and trouble. Adiantum Pacotti is an admirable variety for supplying fronds for buttonhole bouquets, and

should be grown where Ferns are in demand for this purpose. The plants started some time ago should be grown without shade for the present, and as cool as possible to harden the fronds.

Shamrock (S. T.).—The botanical name of this is *Oxalis acetosella*, the common Wood Sorrel, or Shamrock. The plant is a native of the moist shady woods of this country, Europe, and North America, and is one of the most elegant of wild flowers. It delights in retired shady woods, groves, and hedges, and flowers in April or May. It was called by the old herbalists Alleluja and Cuckoo's Meat, because, as Gerard says, "when it springeth forth, the cuckoo singeth most; at which time also Alleluja was wont to be sung in our churches." But Alleluja is merely a corruption of the Calabrian name Juliola. The whole plant has a grateful acid taste, much more so than the common Sorrel, and is on that account used in salads and in sauces. In Lapland it is so plentiful that Linnæus says the inhabitants of that country take scarcely any other vegetable food than Sorrel and Angelica. The expressed juice of the plant is employed to remove spots and iron moulds from linen, and this it does by the great quantity of binoxalate of potassa which it contains. Twenty pounds of the fresh leaves have been found to yield 6 lbs. of juice, from which 2 ozs. 2 drachms and 1 scruple of salt, besides 2 ozs. and 6 drachms of an impure saline mass are obtained, and is sold under the name of salt of Sorrel and essential salt of Lemons.

Uses of the Terminalias (B. S.).—The plant is no doubt a species of Terminalia, and the following uses have been described:—The roots of Terminalia alata are used in India as a febrifuge, and the powder, mixed with oil of sesamum, is employed. The juice of the leaves is injected into the ears to cure earache. *T. agentica*, a native of Brazil, yields a resin similar to gamboge, which is purgative in the dose of half a scruple. *T. catappa*, a native of India and the Mauritius, produces a fruit 3 inches long and egg-shaped, the kernel of which has a flavour of Almonds or Filberts, and from which a soil is expressed equal to the best olive oil that does not become rancid. They are used for tarts and for pectoral emulsions. The Indians employ the juice of the leaves, mixed with rice water, to moderate cholera, the heat of the bile, and to allay headaches arising from bad digestion. The wood is white, hard, and useful for a variety of purposes; and the tree itself, on account of its beauty and the shade it yields, is planted about houses. *T. mauritiana* is a resinous tree growing in the Isle of Bourbon, and there called False Benzoin. It furnishes a sort of resin called gum benzoin, distinct from benzoin. Its bark is thick, covered with a yellow, resinous, and fragrant dust, which colours the saliva a greenish yellow colour; it is of an astringent taste, and serves to tan the skins of the country where it grows; its decoction precipitates iron black, and it is employed in the island as a sudorific. The kernels of the fruit of *T. moluccana* are eatable, but do not yield any oil. *T. vernix* is one of the trees which furnish the celebrated Chinese black lacquer. Its juice is said to be caustic, and its exhalations dangerous.

Sunflowers for Use (Gardener).—Perhaps the following information will be suitable for placing before your employers. The produce of seed per acre depends on soil, situation, and culture, but has been found to average about 50 bushels—equal to 50 gallons of oil and about 1500 lbs. of oilcake; and the stems of the crop, if burnt for alkali, will yield about 10 per cent. of potash, while the leaves may be dried and pulverised and mixed with bran for fodder. The crop, however, has a very scouring effect on land, and particularly robs it of potash, and is peculiarly unsuitable for going before Potatoes in a rotation. The soil most suitable is light, friable, and richly alkaline, and does admirably well to be manured with fresh seaweed; and if loamy or clayey may be advantageously prepared by commixations of shell sand, limestone gravel, or any other opening calcareous substance; and, in any case, must be well tilled and finely pulverised. The situation most suitable is a moderately sheltered one, with sufficient exposure to enjoy free and constant circulation of the air. The sowing may be done at any time in April when the weather and soil are favourable. The rows should not be less than 2½ feet apart and the plants 18 inches asunder. Kainit is one of the cheapest and best manures for this crop, and a dressing of 5 cwt. per acre, with two of superphosphate of lime would not be too much, 1½ cwt. of nitrate of soda to be applied as a top-dressing after the plants are fairly growing, if they do not make satisfactory progress. About 2 bushels of seed will suffice for sowing an acre at the distances recommended. Especial care should be directed to remove all weeds for about a month or six weeks, and occasionally to mould up the earth around each plant. When the heads are quite or nearly ripe, the plants should be cut down at about an inch from the ground, and removed to a shed or some other place of complete shelter from rain, and there left till they become dry; and either then or afterwards they may be freed from the seed; but they must not, in any case, be left on the ground, as they have a great capacity for moisture, and would be very likely to attract it and to become filled with insects.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures,

it being often difficult to separate them when the paper is damp. (*M. T.*)—1, *Narcissus pseudo-Narcissus*. 2, *N. poeticus*. 3, *N. incomparabilis*. (*G. B. S.*)—1, *Doodia aspera*. 2, *Pteris longifolia*. 3, *Selaginella Martensi*. (*Amateur*).—1, *Odontoglossum Edwardi*. 2, *Cyrtopodium punctatum*. 3, *Cattleya Trianae*. 4, *Oncidium concolor*. (*E. H. B.*)—Even if we undertook to name Roses, which as florists' flowers we do not, but only "species" as indicated above, the specimen you forwarded was crushed and shrivelled beyond identification. (*A. O.*)—All the flowers you have sent are florists' varieties, having originated from seed, and of these there are many so closely resembling each other that the only certain method of determining the identity of those without names is by comparison in a large collection or a specialist in charge of a collection might possibly name some from memory. As above stated, we only undertake to name species of plants when characteristic specimens reach us in good condition. (*T. W. S.*)—1, *Hippeastrum aulicum*. 2, *Adiantum hispidulum*. 3, *Chlorophytum orchidastrum*. 4, An excellent variety of *Dendrobium Wardianum*. 5, An ordinary form of *Dendrobium Wardianum*.

Bees—Old Comb (Delta).—The sooner you remove all the black comb, like the sample before us, and give fresh foundation, the better. Bees might possibly be raised in the old comb, but they would be small and weak.

COVENT GARDEN MARKET.—APRIL 2ND.

TRADE very dull in view of the holidays. A few samples of new Grapes to hand from 5s. to 10s. per lb. Strawberries in good supply, meeting a heavy sale.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2	0 to 6	Oranges, per 100	4	0 to 9
" Nova Scotia and			Peaches, dozen	0	0 0 0
" Canada, per barrel	18	0 25	Red Currants, per ½ sieve	0	0 0 0
Cherries, ½ sieve	0	0 0 0	Black " " " "	0	0 0 0
Grapes, per lb.	3	6 6 0	St. Michael Pines, each..	2	0 6 0
Lemons, case	19	0 15	Strawberries, per lb. ..	4	0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	0	0 to 0	Mushrooms, punnet ..	1	6 to 2
Asparagus, bundle ..	6	0 12	Mustard & Cress, punnet	0	2 0 0
Beans, Kidney, per lb. ..	1	6 0 0	Onions, bushel	3	0 4 0
Beet, Red, dozen	1	0 2 9	Parsley, dozen bunches	2	0 3 0
Brussels Sprouts, ½ sieve	1	6 2 0	Parsnips, dozen	1	0 0 0
Cabbage, dozen	1	6 0 0	Potatoes, per cwt.	3	0 4 0
Carrots, bunch	0	4 0 0	" New	0	3 0 6
Cauliflowers, dozen.	2	0 4 0	Rhubarb, bundle	0	2 0 0
Celery, bundle	1	0 1 3	Salsafy, bundle	1	0 1 6
Coleworts, doz. bunches	2	0 4 0	Scorzenera, bundle ..	1	6 0 0
Cucumbers, doz.	3	0 5 0	Seakale, per bkt.	1	0 1 3
Endive, dozen	1	0 0 0	Shallots, per lb.	0	3 0 0
Herbs, bunch	0	2 0 0	Spinach, bushel	1	0 2 0
Leeks, bunch	0	2 0 0	Tomatoes, per lb.	0	6 0 0
Lettuce, dozen	0	9 1 3	Turnips, bunch	0	4 0 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Acacia or Mimosa, French,			Maidenhair Fern, dozen		
" per bunch	1	0 to 1	" bunches	4	0 to 9
Arum Lilies, 12 blooms ..	3	0 5 0	Mignonette, 12 bunches..	2	0 4 0
Azalea, dozen sprays ..	0	6 1 0	" Fr., large bunch	1	6 2 0
Bonvardias, bunch	0	6 1 0	Narcissus, French, 12		
Camellias, dozen blooms	1	0 4 0	" bunches	1	0 3 0
Carnations, 12 blooms ..	1	0 2 0	Pelargoniums, 12 trusses	1	0 1 6
Chrysanthemums, dozen			" scarlet, 12 bnchs	6	0 9 0
" bunches	0	0 0 0	Primroses, dozen bunches	0	9 1 0
Crocuses, dozen bunches	1	0 2 0	Primula (double) 12 sprays	1	0 1 6
Daffodils, dozen bunches	3	0 8 0	" (single) 12 sprays	0	6 1 0
Dentzia, per bunch	0	6 0 9	Roses (indoor), dozen ..	1	6 3 0
Epiphyllums, doz. blooms	0	6 0 9	" Red, 12 blooms ..	3	0 6 0
Eucharis, dozen	4	0 6 0	" Tea, white, dozen..	1	0 3 0
Gardenias, 12 blooms ..	6	0 12 0	" Yellow	2	0 4 0
Hyacinths (Roman) dozen			" French, per bunch	1	6 5 0
" sprays	0	6 1 0	Spiraea, dozen bunches ..	6	0 9 0
Lapageria, 12 blooms ..	2	0 4 0	Tuberoses, 12 blooms ..	1	6 2 0
Lilium, various, 12 blms.	2	0 4 0	Violets, dozen bunches ..	1	0 2 0
Lilium longiflorum, 12			" French, per bunch	1	0 2 0
" blooms	5	0 8 0	" Parme, per bunch	3	0 4 0
Lily of the Valley, dozen			Wallflowers, doz. bunches	2	0 6
" sprays	0	6 1 0	White Lilac, French, per		
Marguerites, 12 bunches	2	0 6 0	" bunch	4	0 6 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0 to 12	Ficus elastica, each ..	1	6 to 7
Arum Lilies, per dozen ..	12	0 18 0	Foliage plants, var., each	2	0 10 0
Arbor Vite (golden) doz.	6	0 14 0	Genista, per dozen ..	8	0 12 0
Azalea, various, per dozen	18	0 30 0	Hyacinths, 12 pots ..	6	0 9 0
Christmas Rose	0	0 0 0	Lily of the Valley, 12 pots	18	0 30 0
Cineraria, per dozen ..	6	0 10 0	Marguerite Daisy, dozen	6	0 12 0
Cyclamen, per dozen ..	12	0 24 0	Mignonette, per dozen ..	9	0 12 0
Daffodils, 12 pots	8	0 9 0	Musk, per dozen	0	0 0 0
Dentzia, 12 pots	9	0 12 0	Myrtles, dozen	6	0 12 0
Dracena terminalis, doz.	24	0 42 0	Palms, in var., each.	2	6 21 0
" viridis, dozen ..	12	0 24 0	Primula (single), per doz.	4	0 6 0
Epiphyllum, per dozen ..	0	0 0 0	Rhodanthe, per dozen ..	0	0 0 0
Erica, Cavendishi, per pt.	2	0 3 0	Roses (Fairy), per dozen	10	0 12 0
" various, dozen ..	12	0 18 0	" 12 pots	12	0 30 0
" ventricosa, per doz.	18	0 3 0	Saxifraga pyramidalis,		
Euonymus, var., dozen ..	6	0 18 0	" per dozen	0	0 0 0
Evergreens, in var., dozen	6	0 24 0	Spiraea, 12 pots	12	0 8 0
Ferns, in variety, dozen..	4	0 18 0	Tulips, 12 pots	6	0 9 0



SWEDES.

So high a place is assigned for Turnips among farm produce, that the reviser of Stephen's "Book of the Farm" tells us in the part recently published, that the Turnip crop has to a large extent given to Scottish agriculture the eminence it has attained, and it has made the eastern half of Great Britain the greatest cattle feeding district in the world. This certainly appears a somewhat bold statement, but it has the logic of facts to support it, and for example we may take Norfolk as a central county in that district where cattle-feeding and Swede-growing are pre-eminent. The cattle, we much regret saying, are not bred there, but the roots are grown there, and it is our experience of Norfolk root-culture that prompts us to write this article.

A weak point in the culture of any crop is precisely that which proves a hindrance to the ordinary and therefore the general practitioner. The weak point in Swedes is the tendency to mildew of the early sowings. Well, the fact that some of the early sown Swedes suffering from the attacks of mildew is patent enough to all who have tried them, but it has no weight in Norfolk, and the practice of sowing Mangolds early in April, and following at once with the first crop of Swedes, is a custom of that county which nothing outsiders may say will alter. Certainly from all we have seen of Swede culture in that county Norfolk farmers can teach the rest of us something, and have nothing to learn from us; yet in the adjoining county of Suffolk there is an interval of fully a month between the sowing of Mangolds and Swedes. Our especial attention was drawn to this matter from observation in Norfolk, and from the invariable superiority of the Swedes of one of our Suffolk farms in the hands of a tenant farmer. He was the younger son of a large landed proprietor; he had learnt farming in Norfolk, and instead of seeking his fortunes in the Colonies, had wisely resolved to stick to the old country and see what he could do with one of the numerous vacant farms which are now to be had at a nominal rent. He was intelligent and observant, and he found it answer much better to follow the Norfolk practice with Swedes rather than adopt that of his Suffolk neighbours.

For these reasons, combined with the results of our own practice, we again recommend our readers who have suitable soil to sow the first crop of Swedes in April, and there can be no better preparation for this useful crop than sheep folding on Rye, for we have only to follow the folds closely with the plough and to sow on the flat to be tolerably certain of a full crop. But if the land is poor then we would prepare for it very much as for Mangold; only if a full dressing of chemical manure is required use only half cwt. nitrate of soda per acre, with three-quarter cwt. muriate of potash, 2½ cwt. steamed bone flour, and 2½ cwt. mineral superphosphate, placing the farmyard manure in the furrows precisely as for Mangolds, and drilling the whole of the chemical manures with the Swede seed.

Exception has been taken to sowing Swedes on the ridge from the fanciful idea that the plant would be more liable to suffer from drought than if sown on the flat. We have repeatedly explained how admirably both ridge sown Swedes and Mangolds withstand drought when sown early on the ridge, because the roots obtain so much moisture from the dung when once the plant is growing freely, and there is the additional advantage of a fine seed bed and deep friable soil. The ridges practically vanish under the frequent use of horse and hand hoes, and in autumn it is an easy matter to decide from its appearance whether a crop was sown on the ridge or flat. The quantity of seed per acre is ruled by the condition of the soil. If it is fine, as it ought to be, 3 lbs. of seed

is sufficient, but when it is less friable from 4 to 5 lbs. of seed may be required to allow for losses through roughness of soil or fly. This early crop is less liable to suffer from attacks of fly than the later ones, but it does suffer occasionally, and we lost plant so much from fly last year on part of a field that it had to be resown. Useful as farmyard manure is to Swedes, it is not indispensable, and those farmers who are only able to procure the chemical manures we recommend may use them with full confidence, for we may remind them that under the experiments conducted in Sussex by Professor Jamieson, a crop of 29 tons. 17 cwt. of Swedes per acre was obtained in pure sand practically without organic matter, the only plant food in the soil being that of the manure mixture. This was in 1882, and the following year the Swedes in the same field weighed 30 tons 7 cwt. per acre, and Professor Jamieson said he had never seen so heavy a crop even in his own county of Aberdeenshire, famous as it is for Swede culture.

WORK ON THE HOME FARM.

That important factor to successful farming, the weather, has been more than usually fickle since our last note was written, and there has been so much rain in the eastern counties that corn sowing has been brought to a standstill. It is true enough that sun and wind soon render the surface dry enough for the resumption of work, but farmers on the Essex clays will hardly get a warm, dry, fine seed bed for the Barley which they persist in sowing. Well indeed will it be for them if they are induced by adverse weather to sow Oats instead of Barley.

In the counties west of Rugby the weather has been so favourable that western farmers are well forward with all their corn sowing. Most west country farms have a better adjustment of cropping than those in the east, and we may give as an example of this sound practice Lord Spencer's co-operative farm at Harleston of about 330 acres equally divided into permanent pasture and arable crops, of which last year about 92 acres were under corn, and 74 under roots and seeds. Of four farms of about the same size which are in hand in East Anglia, only one has 80 acres of pasture, the pasture on each of the farms being 30 acres. This preponderance of arable land was an outcome of dear corn. It continues by mere force of habit and custom, and it has made the struggle with the difficulties of hard times much more severe than it would otherwise have been.

Never have we been more strongly reminded of the urgent need for shelter for grazing animals than during the recent broken weather. We have seen horses, cattle, and ewes with lambs all turned out to take their chance upon rough stubble feed, without any dry food, and practically without shelter. Only a few hours before writing this note we saw the sheep being driven to market for sale in wretched plight. Foot-rot and hunger had rendered the ewes very low in condition, and some of the lambs were so weak that they had to be carried. Certainly he would be a bold man who would risk his means in the purchase of such animals. Upwards of forty lambs died last season in a flock of several hundred, which had been got together at auction sales, and which were sent to us for feed upon an off-hand farm. They were the property of a large flock-master who goes from market to market and buys "anything," and it is in this way that a sale is found for such starvelings.

METEOROLOGICAL OBSERVATIONS.

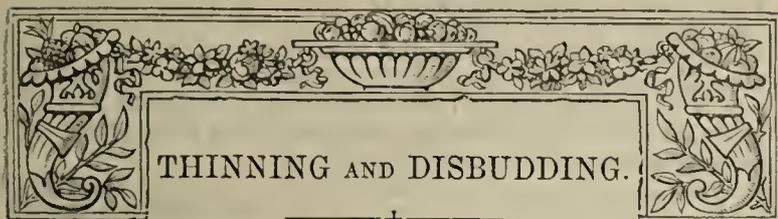
CAMDEN SQUARE, LONDON.

Lat. 51° 39' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Barom. at 9 A.M. and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
March.											
Sunday	23	29.693	47.9	45.2	S. W.	42.0	50.3	42.9	72.6	39.3	0.184
Monday	24	29.553	44.2	42.2	S.	42.2	47.9	36.3	59.3	31.0	0.155
Tuesday	25	29.290	45.7	44.1	S. W.	42.3	55.2	43.1	88.9	37.9	0.030
Wednesday ..	26	29.780	48.9	47.6	S. W.	43.0	60.4	40.7	103.7	35.2	—
Thursday	27	30.056	51.7	50.6	S. W.	44.4	56.4	49.0	71.3	45.4	—
Friday	28	30.094	52.9	51.3	S. W.	45.7	66.2	50.1	100.8	46.4	—
Saturday	29	29.917	52.8	49.9	W.	46.2	57.1	44.1	91.3	35.1	—
		29.771	49.2	47.3		43.7	56.2	43.7	84.0	38.8	0.367

REMARKS.

- 23rd.—Frequent heavy showers of rain and occasional hail with intervals of bright sunshine.
 24th.—Occasional gleams of sun early; frequent spots of rain from 10 A.M., and heavy rain from 4 to 7 P.M.; fair evening.
 25th.—Cloudy all day.
 26th.—Cloudy early; bright mild day.
 27th.—Cloudy throughout.
 28th.—Cloudy early; fine bright day.
 29th.—Brilliant early; cloudy by 10 A.M. and only occasional sunshine after; bright moonlight night.
 ▲ fine warm spring week, the maximum in the shade on the 23th being unusually high for March.—G. J. SYMONS.



THINNING AND DISBUDDING.

PROBABLY no operations in gardening are more important than the early thinning of seedlings, both of flowers and vegetables, and the timely disbudding of Vines and fruit trees to prevent the overcrowding of their growths. But essential as this work is there are very few gardens in which it is systematically and properly conducted. The drawing of small seedlings from a crowded mass is a tedious occupation, and the time devoted to it is often begrudged, while the duty is commonly neglected by men who cannot, as they say, "fiddle and potter about, but must be doing something to make a show." And it is not gardeners alone who are given to that line of reasoning, but there are those above them who are not over-satisfied to see strong men engaged in such light-fingered movements, but prefer to see them more laboriously employed. It is impossible to say how many crops have been weakened and how many millions of plants spoiled through the crushing and crowding to which they have been subjected in the early stages of growth, and the lightest work for affording them space for development is often the most profitable that can be engaged in. A gardener who knows his business is fully alive to the importance of such apparently small matters, and if he is allowed to do what he know wants doing the first, or has not two or three men's work before him, he will not permit either plants, Vines, or trees to suffer by want of timely thinning or disbudding.

It is impossible to attach too great importance to the operations in question. An example of the value of adequate space to plants from their first appearance above ground may be adduced from a very simple crop—Radishes. Sow the seed thickly, and allow the plants to remain to struggle with each other in a densely crowded mass; the crop will be worthless, and seed, labour, and ground wasted. No great loss, perhaps someone may be inclined to suggest—"only a few Radishes." There are men, no doubt, who make light of small failures, but they are rarely notable for great achievements. But we have not done with the Radishes. There are at this moment scores of acres growing in the London market gardens, on land occupied at a rental of £8 to £10 an acre. Obviously it must be rich, and the crops well managed, or it could not yield a profit to the tillers. Suppose a man has five acres of Radishes spoiled by thick sowing and dense crowding, would the loss of such a simple crop be trivial? On the contrary, the wasted seed, fertility, and space would be serious. Bad management of that kind means ruin, but it is not allowed by good cultivators; and five acres of Radishes, thinly sown, thinly grown, early and clean, bring a return of from £20 to £40 an acre. This, if anything can, will enforce the lesson that we desire to impress on all who need it of the importance in the first place of thin sowing, then if the plants come up too thickly of the necessity of thinning them quickly and sufficiently. For preventing needless expenditure in two ways—waste of seed by its too lavish use, and the consequent cost of thinning the plants—one of the largest and most successful of market gardeners sows his own seed with his own hands, though his weekly wage bill exceeds that of a thousand acre farmer.

The principle advocated applies to all plants and crops that are intended to develop into objects of beauty or usefulness, from Lobelias and all other flowers raised in pots under glass, also

Celery and whatever vegetables may be raised similarly, and equally to open ground crops of Turnips, Carrots, Cabbages, or whatever may be raised, including flowers. Let them remain crowded too long and grow too tall, and nothing that can be done afterwards, including thinning, can atone for previous mistakes or neglect. For insuring strong plants of the most satisfactory kind the seed leaves or cotyledons should never touch each other. That is the first condition for robustness of habit, and the subsequent withdrawal of superfluous plants should never be deferred till those which remain fall over, because not strong enough to stand alone. It is impossible that such weaklings can be satisfactory and a credit to the cultivator; moreover, this late thinning of root crops, such as Onions and Carrots, simply invites the attacks of their natural enemies—maggots—by the easy vulnerability of the tender stems and the accessibility of the underground portions to parent insects for depositing eggs. From whatever point of view regarded, the close and long-continued crowding of young plants of all kinds cannot be too strongly condemned. It is obstructing, not assisting, Nature, and a burlesque on intelligent cultivation.

Passing to disbudding or removing superfluous growths from Vines and fruit trees. This work is not by any means so thoughtfully conducted in all gardens as it should be. In some it is deferred too long; then, as if to make up for past omissions, the removal of the crowded growths is excessive. It is a mistake ever to allow any crowding of the foliage, yet it is not too much to say that this error is apparent every summer in more than half the vineries and Peach houses in the kingdom. One good leaf that develops under the direct action of light is of more benefit to Vine or tree than ten crushed, crowded, and shaded, hence flimsy examples. These are tree weakeners, abstracting more than they return, for they cannot elaborate the crude sap and secrete nutrient matter for the wood and fruit; but leaves of the best character, fully textured and their functional powers developed, are tree strengtheners, for they return more nutriment than they abstract for their own support. The more of these perfect leaves there are the better, therefore undue suppression of growths should not be practised, but by far the commoner evil is an unreasonable multiplication of parts each struggling with the other for sun and space, and all suffering by the effort.

The first and most effectual measure for obviating the evil in question is the removal of those growths when quite small that are obviously not wanted for occupying space, for the sufficient reason that there is no adequate space for them to occupy. A little forecast of the space that starting growths will need for the full expansion of the foliage will enable a decision to be arrived at relative to the removal or retention of those growths. Yet prudence must be exercised and allowance made for accidents, especially in the case of Vines, or a blank may be created that cannot be easily filled. The growths actually required for permanent positions must be absolutely safe before all others near, some of which might be useful as substitutes, are taken away.

Newly planted Vines need particular attention. The canes of many are much too long for stout growths to be produced. The sap is divided into too many channels to flow in full force, and a concentration on fewer outlets will increase the momentum, and consequently the strength of the growth extensions to which it is directed. Therefore it is often highly desirable to gradually remove a number of shoots from the upper parts of canes that were not sufficiently shortened before planting, and at the same time the lower parts of canes from which fruit-bearing laterals are not required should not be wholly denuded of buds as many are, but it is better to let a few leaves expand for enlarging the sap vessels and strengthening the stems. Established Vines, except in the charge of the best Grape growers, are usually permitted to become much too crowded, and this alone is the cause of many failures or inferior fruit. The too free extension of laterals can and should

be prevented by timely, yet gradual, and judicious disbudding and removing superfluous growths.

Fruit trees both indoors and out also need thoughtful attention, with the object of producing healthy fruitful wood, and this cannot be insured if the growths are not thinly disposed. The remarks of Mr. H. Dunkin on this subject in another column are worthy of the attention of persons, and they are numerous, who have not had the same good training in the management of fruit trees that enables him to give such sensible advice.

AN AMATEUR'S EXPERIENCE WITH ORCHIDS.

[Read by the Rev. F. D. Horner at a meeting of the Wakefield Paxton Society.]

It has been said that the way to learn a subject is to write a book about it. I do not say that the way to grow Orchids is to lecture upon them, but I could not venture to lecture upon them if I had not grown them. As mastery of the subject must precede the writing of the book if it is to be worth anything; so in a lecture on our experiences, it needs must be that we should first have had experiences to speak of. In Orchid culture mine do not extend beyond a modest range, but through the eight years in which I have been able to watch and tend them very closely, I can see, far past all I know, how vast is the great dark land of that which I know not. This leads me to express the hope that you will suffer me to turn the lecturer's table upon you in this way, that, while very glad to answer any questions I can, I may be allowed to ask questions in return, of Orchid growers more experienced than myself.

I have some Orchids that baffle me. I daresay we all have. There is the Orchid of wide repute as a miffy grower with anybody, and yet we could not resist having an attempt at it ourselves. There is the Orchid, now doing well, that has refused a dozen offers of other situations in the very same house. Again, the Orchid that went on amazingly for a while, but now, under no change of treatment whatever, is growing "small by degrees and beautifully less." There are Orchids that have always grown most generously with me, such as *Cattleya citrina* and *Dendrobium Falconeri*, and yet they are not happy in some collections, and there are some which I cannot keep up for long that someone else can manage very well.

If there is time, I would gladly ask about these after your questions have been put. Were we all strangers one to another such a course might seem out of order, but as being alike entitled to write "M.P." after our names, as "Member of the Paxton," I feel as if no such barrier need intervene.

Of course we know, and the reflection is one which Orchids seem specially constituted to call up, that not one of them can feel quite at home with us. All have somewhat to bear with, on points of importance—seasons of shorter daylight than they ever have at home, and days of greater length than they ever knew before, perhaps seasons changed and protracted for rest and growth, and subtle differences in air and light. We can give them neither the intensity of their native sunshine, for under glass ours is not the same, nor the richness of their native shade, nor yet the luxurious downpour of their own rainy seasons. Captives in a strange land, some will always feel this keenly. Thus will such become our miffy growers, our unwilling guests, that little by little sidle towards the door, and silently steal away.

In the culture of Orchids, and indeed of all my favourite florist flowers and other plants, I am an "amateur" in the simplest meaning of that word, which signifies "a lover," and also in the sense of being my own head gardener and foreman, and my own "man under him." However, I have as helpers, and in part as pupils, a "man-and-boy"—a combination not infrequently to be met with in rural homes of "the undignified clergy!" What I ought to apologise for calling "the range" of Orchid houses has grown from time to time as the plants increased, and somehow the plants have increased as the houses grew; still, the length of them altogether is only 87 feet. All the warm and intermediate house Orchids grow in a twice-lengthened lean-to, about 40 feet long and 10 feet wide, and 10 feet high at the back. This range runs east and west, and has a full and clear south aspect. The houses for cooler and cool Orchids are two span-roofs, each 20 feet by 12 feet, and 8 feet high in the middle. They run north and south, and catch the morning and afternoon sun, but are sheltered at mid-day by tall Yews, not near enough, however, to overshadow them. I like several smaller houses better than one large one for Orchids, and as these contain among them 430 varieties and 911 plants you will see that the plants cannot be very large specimens, nor live very far apart. As with the houses so with the plants; I would

rather have them of moderate size and fair blooming strength than in "magnificent masses." Plants of a medium size are more readily looked over, and signs of mischief cannot be too easily detected. They are in fairer proportion to houses such as mine. I can grow more varieties, and can place the plants close enough together to need no adventitious foliage, as of Ferns, to fill up blank spaces. Mine have several times been in danger of getting too close, but it has been for want of more room, and not that I would conceal the natural habit of an Orchid, as though there were some ugliness to be hidden, in those that bloom from naked stems, or have grotesque or bulky pseudo-bulbs.

It is a conventional idea that all flowers must be accompanied by leaves. How many by nature are not, and when are flowers so effective and emphatic, so modest or so curious, as when seen as Nature has disposed them on the plant? No foliage suits them like their own, and those ordained to bloom without it have no need of it, either for their use or beauty. All the houses are of very simple construction. I have never aspired to build any elaborate Orchid houses. They are plain and village made, but they suit the plants well, and that is the main thing. The original house is one which I diverted from the former use of plants more or less tropical, that had indeed their day and mission, but were not Orchids, for which I may say I have always felt affection since a boy. In this old house I grew Tea, Coffee, Sugar, and Tobacco, Rice, Ginger, Pepper, and Chocolate, Cotton, Camphor, Egg Plants, Bottle Gourds (*Lagenaria*), and the long streaked snakes of *Trichosanthes colubrina*. The Sensitive Plant here was a perennial, and ripened its seeds, each curiously hung in the fringed pod like a picture in a frame. I had also a Mahogany sapling, and a few other foreign but familiar woods.

These things were of interest to many of my country parishioners, who were amused to see groceries alive, though some were disappointed that Tea and Coffee plants did not smell of what they were, as garden pot herbs do, or the too familiar Onion, while the "eggs" of the Egg Plant had neither shell nor yolk. But many of these plants outgrew the space I had for them; and when I transferred the old house from a cramped position at Kirkby Malzeard to my garden amid the sunny pasture lands and meadows round Lowfields, the tropical flora of that earlier epoch passed gradually away, and the age of Orchids dawned and grew.

Respecting the construction of the Orchid houses, I particularly wish to mention two most simple, unaffected, and effective aids towards supplying those necessities of Orchid life—a maintenance of atmospheric moisture, and an active circulation of the air when it would not be safe to admit any from outside. I am not here propounding any catchy conundrum, or vaunting any empirical patent of my own. If the one scheme is not new to you, all I would do is to add my hearty testimony to the value of it; and if the other is not new either, it virtually is so to me, for I only found it out by accident.

I will speak of that first which concerns the circulation of the air. Before the span-roofs were available I needed a small cooler compartment, which I built against part of the lean-to front, and connected this annexe for its supply of heat by removing the glass front partition between the lean-to and it; leaving, however, the brickwork below the front sashes. A stream of warm air flowed in, and under it a cold return current from the annexe set in too, and as it had to pass over a stage of warm house plants I felt that I had perpetrated a blunder. In addition to this form of failure there was another. A cold and motionless body of air, some 3 or 4 feet deep, lay in the annexe at the level of the return current, and down to the floor. The back cool current hardly ruffled the surface of this heavy, cold, dead sea of air. A lighted candle was a beautifully delicate test of this, but so indeed was I in feeling like a warm blooded animal above the waist, and a cold blooded one below; much as we might suppose a mermaid would have to be in her fishy and fleshy combination.

It then occurred to me to knock out every other brick in the lowest three courses of the partition wall. This device of course drained the dead sea, and set the whole body of air in circulation; nothing but warm air passed over the plants, and all the cool from the annexe flowed back through the brickwork channels near the floor, to be re-heated in the lean-to. In a short time there was not any chilly air in the whole circulation, and never has been since. The colder and more unsafe for admittance the outer air may be, the more rapidly does this new circulation move. The effect has been very happy upon both the growth and the foliage of the plants, and the tenderest flowers do not suffer from spot and damp in the most sullen and obnoxious weather. I have the span-roofed houses so arranged that I can have a similar action at work between them. One is less supplied with pipes than the other, both because I require it cooler, and because if the heat were equal, there might be the calm of an equilibrium, so far as this kind of circulation is

concerned, leaving each with only the usual movement of its own warmer and cooler air.

I cannot admit outside air close to my pipes, and am inclined to doubt whether all the air admitted so does really get warmed at all in passing them. Air is a bad conductor, and only the thin stream in impact for a moment with the pipes may carry much warmth with it. A quantity may pass in without being influenced at all, just as it has been found that the centre of a stream of people in a departing congregation were too imperfectly affected by a collection at the doors, the boxes having small effect beyond the thin current of humanity impinging on them. Hence the old plan, that admitted of so much passing on untouched, has given place to the happier method that reaches all! However, you will see that it is not fresh air from outside that is in question, but an active circulation of the air within. You will not take it that I suggest any substitute for fresh air whenever safe, for I give the Orchids all I can. Fresh air is always entering by laps of the glass and other narrow avenues, as may be seen by the way in which fine particles of dust get in on dusty, windy days.

My other valued auxiliary for maintaining a kindly and unflinching moistness of the air simply consists in having natural earth floors to all the houses. The pathways are made with stones and clinkers, and faced with sifted coke. There is never any drying up, and never any damping down. Enough moisture escapes from the stages to keep the earth floors always damp. Such a floor is always sweet, and need never be unsightly if it is kept lightly ruffled with a rake. It is liable to no extremes of condition, and I think it is more sweet and healthy for the plants than any hard, perhaps even ornamental flooring of the house that seems to grow nothing well because it has cost too much.

The greater part of my Orchids I have grown on from newly imported plants, and many were half established but unflowered. Some I bought in bloom, especially while at certain times we were in lack of a succession of species in flower. Now, however, there are no flowerless intervals in all the year among the Orchids; but even if there were, there is abundant interest in watching what these curious plants are doing in their wonderful habits of life and growth. It may readily be imagined that there is a powerful charm—a serene sense of security to the tremulous beginner—in reposing his early trust upon “established Orchids.” It is beginning where someone else has left off, and he will stand upon an assured foundation from the first! The period of convalescence is safely passed. He has had no anxious watching by the sick bedside; no sad burden of his dead to carry forth. Perhaps flowering strength is again attained. In all probability there is no danger now from the undetected eggs, or the ever execrable larvæ of unclean horrors in tropical insect life; and yet, as the boy said who strove to express himself in language beyond his strength, he may find he has “planted his foot on *vice versa*.” For if the established Orchid has already been flowered in this country, there is another and a sadder light in which it may be viewed. Coming with a character as a high type in a variable species, it would of course come with a correspondingly high price, which, however, might or might not be of consequence; but in absence of these modest assurances of worth, it may be nothing but “a cull”—a cast-out from some collection more rich without it. For the amateur orchidist soon grows to be so far humanised in this as in other pursuits, as to freely set price upon and part with that which he has discerned to be inferior, and in so doing to wish he had invested in fewer Orchids, where variation in type makes so much difference in worth and beauty. I would distrust, for any high quality, the plant that has been silently proved, and comes, unwept for and unsung, to the auction room “without reserve.” The advantage of the newly imported or half-established plant is that you may have happened to select a fine type of the flower, while from among plants in a more advanced condition the probability may be gone.

ORCHIDS FROM SEED.

I very soon had yearnings to possess seedling Orchids of my own raising, and if only this branch of Orchid culture could be brought more within the range of practical horticulture, what beauties past imagining would be revealed, and how, from what we have seen of hybrid Orchids, we long for more! Of the two important points, getting the seed and getting it to grow, the first is easy compared with the second. I have a few hybrid seedlings of my own, but I suppose they hardly represent one in many thousands of seed sown. They appeared in an inverse ratio to the pains I took to sow them. After dusting them over several likely and careful contrivances for raising them, the only seeds that grew were some that I had carelessly blown about upon any basket or block or pot that would save wasting the remainder of a pod of seed. No seedling from a fine pod of *Cattleya citrina* × *C. Mossiæ*, which I sowed among the parent plants, has appeared within a year, and I do not know whether it is hopeless. Seen through a

microscope the seed seemed well developed, and so did that of *Phalænopsis Schilleriana* × *P. amabilis*, but it did not grow. I have never removed the pollen masses from the flower of any seed parent, thinking that, while secure in the capsule, there will be less danger of its own pollen accidentally touching the stigmatic surface.

There is a curious impression that whatever a flower of *Zygopetalum Mackayi* is crossed with, the seed will produce simply *Zygopetalum Mackayi*! I have some seedlings of which this *Zygopetalum* is the seed parent, and the male parents were *Epidendrum ciliare* and *Oncidium unguiculatum*. The seedlings are growing finely, and I must say they have at present a likeness to their mother. Yet I cannot think the seed parent received any influence from its own pollen, as I did not displace it in fertilising the pods, nor were any of the capsules of any of the flowers on this spike disturbed, neither was there any other plant of the kind in bloom on which the pollen might have been set free. Having the opportunity I fertilised *Odontoglossum Rossi majus* with *Zygopetalum Mackayi* (!), and there is a huge pod. Supposing this seed should grow, it will be interesting to see if the *Zygopetalum* influence can really turn this seed into *Zygopetalum* when it has had no maternal share in producing it. If that is so, there must be more strange things in Orchids than were ever dreamed of in my poor philosophy.

I have other Orchid pods of interest, but it remains to be seen whether anything will grow out of them. Among the best are two fine ones on *Vanda Sanderiana* × *Vanda cœrulea*, of which I should greatly like to see the seedlings, but have had no experience with *Vanda* seed. Others are *Oncidium Papilio majus* × *O. Lanceanum*, and *Cattleya Trianae* × *Brassavola glauca*, a large night-scented flower, of a beautiful moonlight shade of white, and a spearlike dash of crimson on base of lip. I have not been able yet to use my plant of *Brassavola* (*Lælia*) *Digbyana* as a parent. Seed-bearing is often a very perceptible strain upon the plant, or that lead of it which bears it. A *Phalænopsis* carrying a large pod never made a new leaf for two years afterwards, though it lost none. The seed-bearing lead on *Cattleya citrina* did not break the year after, though it grew again the season after that; but on *Vanda Sanderiana* the pods have had no visible effect on the subsequent growth of the plants.

The earliest symptom of fertilisation is the swelling of the column, and it is not until the turgescence of the rostellum at the head of it that the capsule confining the pollen masses is displaced, too late for them to interfere. In many cases the flower dies soon afterwards, but in *Phalænopsis Luddemanniana* the flower was persistent, thickening in all its parts, changing to a reddish green, and living till the pod was ripe. *Zygopetalum Mackayi* lost its lip, but the sepals and petals, much thickened, remained upon the pod. *Oncidium Papilio* and *Vanda Sanderiana* have retained the flower distinctly, but in a dry brown state.

(To be continued.)

NOTES ON FRUIT TREES—APPLES.

(Continued from page 276.)

My second point is that our inability (and it is a demonstrated fact) to compete with American Apples in the markets is the result of indiscriminately planting trees in locations unsuited to their producing fruit of the essential size, colour, quality, and crop to satisfy the buyer, and return a fair per-centage of profit to the grower. The orchards of Nova Scotia, Maine, Massachusetts, Connecticut, New York, and other of the north-eastern States of America are, as results of a survey of the map, more favourably located than those of the British islands. The great Apple producing districts of America lie between 41° and 46° north latitude, those of England and Wales are situated between 50° and 54° north latitude. London in latitude 51° 32' N. has a mean annual temperature of 50·1°, mean summer temperature 63·8°, and mean winter temperature of 37·3°, with an annual rainfall of 24 inches. New York 10° further south, or in latitude 41° 6' N., has a mean annual temperature of 51·7°, mean summer temperature 72·3°, and mean winter temperature of 31·4°, the annual rainfall being 36 inches. England, by virtue of the Gulf Stream or ocean current as shown by the “temperature chart,” is singularly favoured whereby it is placed in the southern part of the north temperate zone, whilst the Apple producing districts of America are placed in the northern. The British Isles lie in the southern with an annual isotherm of 68° on its southern limit, and 37° isotherm of the coldest months on the northern, whilst the limit of the other or north part of the temperate zone has an annual isotherm of 32°. The southern part of the temperate zone in which England is located has a mean annual temperature of 52½°, whilst the northern part of the tem-

perate zone in which the Apple producing districts of America are situated has a mean annual temperature of 50°. This mean annual temperature, so favourable to Britain, is highly misleading, as it is not the mean annual but the summer temperature that influences vegetation in the growth and perfection of crops, and it is in this respect that the American climate is so favourable to fruit trees. The severity of the American winter insures complete rest, which contributes in no small degree to the vital force and energy of the trees. Immunity from damage or destruction of the flowers and embryonic fruit is assured by the late spring (without frost) quickly passing into summer, and the close of the season or autumn is alike favourable to the perfecting of the crops and the maturing of the wood and buds as to the gathering and storing of the fruit. The winter also favours the keeping of American Apples, for, though the cold be 5·9° lower than the mean winter temperature of London, it is continuous and dry, not subject to the frequent changes which characterise our climate.

Against those advantages of climate we have as a set-off to place our almost absolute immunity from drought and of escape from insect ravages, which so militate against American growers that it is difficult to make choice of which have least difficulties to contend against. The American would no doubt appreciate some of the English moisture, so as to secure more juice in the fruit, and we should value an insurance of bright late summer and autumn weather, with immunity from damage or destruction of crop by late spring or early summer frosts, and other uncertainties of climate which beset orchardists in insular locations. Everything, however, does not depend upon climate. Knowledge and experience must result in ascertaining the location and capability of production, for though Nature may limit the subject's adaptability to soil and climate, much can be effected by cultivation, acclimatisation, and selection, considerably modifying Nature's inherence, and England, from the diversity of its surface, presents advantages to the fruit cultivator which, as proved by the excellence of product attending skilled and intelligent culture, is alike the envy and admiration of all mankind. Indeed it rests upon the barest supposition that the progenitors of the race of Apples now grown were introduced at various times from the Continent, and were not obtained here as direct improvements on the Crab. It is known, however, that even the Crab in its wild state evolves by "natural selection" into Crab Apples, and that though the Crab is indigenous to Britain and all the temperate and warmer parts of Europe, it is quite as reasonable to suppose that our progenitors were as much awake to their own interests as their continental contemporaries. What indeed is the Lady Apple or Api but a highly coloured and perfumed Crab, which according to the footnote to Dr. Hogg's description of this Apple, "was first discovered as a wildling in the Forest of Api, in Brittany," and that "it has been asserted that this Apple was brought from Peloponnesus to Rome by Appius Claudius." Our Golden Pippin and Old or Winter Pearmain are not claimed by our continental friends, and though claims may be laid to Ribston Pippin, it is certain that our present race of Apples are resultant of British effort on this or American soil, and that whatever may be due to introductions, much more results from improved cultural effort at home, alike on this as on the other side of the Atlantic.

Although Britain is the home of the Apple it is quite clear its surface is not equally suitable for the production of the choicest and finest fruit. Our specimens as placed on the exhibition table, and the choicest of our productions placed in the markets, are exceptionally favoured by location (some of it grown under glass), soil, and skilled culture. They, in fact, afford no criterion of the general produce of gardens and orchards. Everybody knows that they are brought together to show what can be effected by high-class culture, but they are not representative of the varieties grown under conditions that must in the main obtain when grown for profit. Of the exhibitors at the Apple Congress in 1883 how many were growers supplying the market? Nine-tenths were either nurserymen or gentlemen's gardeners! Where were the growers that place the majority of British Apples in the markets to compete with importations? Truly, they were unrepresented directly, though they were to a certain extent indirectly, as some of the exhibitors, much to their credit, pronounced some of the dishes to be selections from orchards in their respective localities. Surely if fruit such as that brought together at the Apple Congress and periodically at shows, can be grown by nurserymen and gentlemen's gardeners in nursery quarters, and in gardens or adjoining orchards, equally fine can be grown by those having the requisite knowledge, intelligence, and capital throughout the length and breadth of the land. That is the question. Dividing hedges of evergreen or deciduous subjects may be of little use in breaking the force of gales to an orchard of standards, but they are singularly effective in sheltering a plantation of cordon, espalier, bush, or pyramid fruit trees. Even should no distinct screen or shelter be provided, the trees are grown in such quantities and at such dis-

tance as practically to protect themselves from cold biting winds in spring and mitigate the severity of gales in autumn. Still, trees reared in warm sheltered nooks would not avail the grower for sale; therefore, they are grown in open if not in exposed situations, with no more shelter than they afford themselves, and as such are representative of the suitability of the dwarfing culture for general adoption.

Private gardens afford no characteristic in the exhibits of the fitness of varieties for profitable cultivation. Cordon, espalier, bush, and pyramid fruit trees have advantage of site, shelter from wall, fence, &c., which are not available generally for fruit growing for profit. In not a few instances the fruit exhibited is taken from trees that are favoured by heat radiated from walls or some singularly warm, sheltering, or heat-retaining agency, veritable sun traps, and in not a few instances the fruits are taken from trees against walls, fences, or grown under glass. In what way fruits so grown afford a criterion of adaptability for general cultivation it is difficult to understand.

Nor is the fruit produced by orchard trees as they are seen in gentlemen's places any safer guide to the would-be planter for profit, for such orchards mostly are favoured by site, have special sheltering belts of trees on exposed and cold quarters, with the additional advantage of a richly wooded park and country associated with those establishments. Statesmen, statisticians, economists of all grades beholding imported Apples flooding and commanding the markets, and comparing them with those at their and the exhibition table arrive at the conclusion that if such fruits as they use and see often can be produced by gardeners, they, or similar can be grown by the cottager and farmer. The money expended in imported Apples would, were it, or some of it, to find its way to the hardly beset agriculturists materially befriended them. The artisan with a bit o' garden scarcely big enough to "swing a cat round" plants a tree in defiance of the wind whistling round his house or the dividing wall corner, the suburbanist plants cordon and bush trees in the wrong place. Those plant for pleasure. One fruit of their own growing is valued more than a dozen from the market.

It is different in the country. There the cottager and farmer plants with a view to an abundant supply of fruit for household purposes and to sell in the adjacent towns. What do we find? The cottager's garden cumbered with trees, the fruit small, useful at home, but not looked at in the markets. The farmer's orchard is a forest of mossy stems, lichen-smothered branches, and thickets of twigs—as many dead as living. To complete the picture there are a few pollards, canker having eaten their heads off, the fence a thickset hedge of Thorn, Briar, Bramble, Sloe, and Plum-wildings, Crab, with a strong contingent of Nettles, struggling for the mastery. Yet those trees bear fruits, small and sour, which do not pay for gathering.—G. ABBEY.

(To be continued.)

FLOWER NOTES FROM KIRKCUDBRIGHTSHIRE.

THE Crocuses are nearly over, and their brilliant masses of colour are sorely missed in the garden. But the Daffodils are now to the fore, and with a moderately sized collection we hope to have some in flower until well into June. Among the many species and varieties now in flower it is difficult to select a few for mention. We find *N. scoticus*, the Scotch Garland Lily, one of the earliest here. It was only a day or two later than *N. minor*, and opened simultaneously with *N. pallidus præcox* var. *Asturicus*, and has preceded established plants of *N. obvallaris* by a considerable time. The gorgeous *Telamonius plenus* flowered within a day or two of *scoticus*, and is, despite its being so common, one of our indispensable plants. *N. Capax plenus*, Queen Anne's double Daffodil, has come well this year, but derives much of its attraction from the curious formation of its flowers, which, as Parkinson so well said, are "of a pale lemon colour, consisting of six rows of leaves, every row growing smaller than the others unto the middle, and so set and placed that every leaf of the flower doth stand directly almost in all, one upon or before another into the middle, where the leaves are smallest, the outermost being the greatest."

The beautiful little white trumpet Daffodil, which is said to be *N. moschatus* of Haworth (not *moschatus* of the Dutch, which is *albicans*), is also fully in flower, having opened on March 30th. It is undoubtedly a gem in the garden, the purest white of all, and one which should be largely grown on all light soil. Our only regret is that we have not more plants, but fortunately it is now comparatively low in price. Several of the other trumpet Daffodils are in flower, but *N. Burbidgei* and some of the *Barri* group will not be in flower for a day or two. Anemones have been

among the most useful of our garden flowers this winter. All through the winter we have been cutting flowers, and many are now in bloom. Some of the St. Brigid Anemones are very fine at present. In light soil I find it better not to lift the single varieties, but to let them remain in the ground. *A. hortensis rubra* fl.-pl. is very pleasing, being quite distinct in colour from *A. fulgens* fl.-pl. *A. appenina* is just opening its beautiful flowers. So many flowers are now opening to the genial influences of spring that it is impossible in limited space to speak of them. Arabises, Aubrietias, Primroses, Polyanthuses, Myosotis, Doronicums, hardy Primulas, *Erica carnea*, and others, all in full flower, also urge their claims, but in vain, as we must be inexorable, and plead the exigencies of space.—S. ARNOTT, *Rosedene, Dumfries*.

DISBUDDING PEACH TREES.

In the formation of even, well-balanced trees, covered with fruitful wood from top to bottom, disbudding and judicious stopping play more important parts than are generally assigned to them. In more than one instance have I heard the wisdom of the extension system of pruning and training Peach trees not only questioned, but strongly condemned, but I am prepared to maintain that in nearly every instance where this system results in the production of trees with stems bare at the base, although perfectly healthy in other respects, the real cause of the evil lies in the improper manipulation of the young shoots at disbudding time and throughout the growing season. It is when the flow of sap is in full play an easy matter, by the aid of judicious pinching, to divert some of the vigour of the trees from the strongest shoots, when the sap is concentrated into the weaker, and by constant attention during the summer months the work of shortening back at the winter pruning is reduced to a minimum. By following the treatment above indicated the energies of the trees are fully utilised, instead of being wasted by growing strong shoots, to be subsequently cut away.

These remarks are intended to apply more particularly to trees under glass, as unfortunately severe and unexpected frosts just as the buds are beginning to swell, and before protection is given, will sometimes kill numbers of both wood and fruit buds (on outdoor trees), and by so doing leave many an otherwise fine tree bare at the base, as it is generally the bottom shoots that suffer the most. In disbudding Peach trees the strongest parts should have the first attention; this is generally the upper portion, although it is by no means uncommon, for very strong shoots to be found near the base. Whenever such shoots are situated about half of the young shoots should be removed, taking care to reserve one at the base, and another at the point. The moderately strong shoots should next be looked over, and a smaller proportion of them removed, while the weak ones should not be interfered with at the first disbudding, the object for this being to draw the sap (which has received a slight check by the removal of shoots from the strongest branches) with greater force to the weaker. This first stage of disbudding should be performed when the shoots are an inch long; a fortnight after the trees should be examined again. This time the thinning may be done pretty freely on those shoots that have been already operated upon, leaving the best placed, but more of them than will ultimately be required. Always give the preference to those which spring from the upper side of the shoot, although to fill up vacancies it is sometimes necessary to reserve a few from the under side. If the weak shoots have by this time made fair progress they can be slightly thinned.

At the final disbudding a careful selection of the best placed moderately strong shoots should be made. In the case of trees that have filled the extent of trellis allotted to them the matter is simple. One shoot should be left at the top of each fruit-bearing shoot, and when long enough stopped at five or six leaves. Another should be left at the base to be trained in for next season's fruiting. In the case of long shoots, young growths may be trained in at intervals of about a foot, if it can be seen that there is room for their development without unduly crowding other portions. If not wanted a few should be stopped at a couple of leaves in preference to being removed altogether. These will form close spurs, and often prove extremely useful in preventing gaps where young shoots die, as they sometimes will do. In fact it is a capital plan to stop a few young shoots at intervals all over the tree to form spurs, not on account of the fruit they will produce if left, but for the purpose of having a reserve to fill up vacancies. When young trees have plenty of room for extension it must be borne in mind that the further they advance from the main stem the greater number of side branches will be required to fill the space, leaving the young shoots at from 4 to 6 inches apart. This must, therefore,

be provided for by leaving the requisite number at disbudding time.

Throughout the growing season a sharp look out should be kept upon strong shoots that show a tendency to rob their neighbours. These should be frequently stopped and a lateral taken from the point, and in cases where there is room the side laterals also trained in. This is one of the best of all methods for bringing gross shoots into a fruitful state, as by so doing the sap is diverted into several channels, the result being numbers of medium-sized shoots in the place of a few strong ones, and by following the advice above given this result is obtained without the loss of a season's growth, which is the case when the strong shoots are allowed to ramble at will for a time, only to be cut away at the winter pruning.—H. DUNKIN.

DEUTZIA CANDIDISSIMA FLORE-PLENO.

THIS cannot be claimed as a new plant, and it was perhaps a cause of surprise to some that the Floral Committee of the R.H.S. recently



FIG. 37.—DEUTZIA CANDIDISSIMA FLORE-PLENO.

awarded a first-class certificate for a specimen exhibited at the Drill Hall; still there can be no valid reason why certificates should be confined to novelties, as some of the old neglected or forgotten garden plants are well worthy of being again brought into notice by such means. The shrub in question is valuable for its floriferous habit, the pure white double flowers being produced in long dense racemes, and I have a charming appearance either cut or on the plant. It is well suited for culture in pots, and can be had in flower early by moderate forcing. About Easter white flowers of all kinds are much appreciated,

and those of the *Deutzia* would be a useful addition where it has not already been grown.



ROSE SHOW FIXTURES 1890.

- June 24th.—Drill Hall, Westminster (N.R.S.).
 „ 27th.—Royal Aquarium.
 „ 28th.—Eltham, Reigate.
 July 1st.—Canterbury, Hereford, Sutton.
 „ 2nd.—Croydon, Dursley, Hitchin.
 „ 3rd.—Bath, Farningham, Norwich.
 „ 5th.—Crystal Palace (N.R.S.).
 „ 8th.—Gloucester, Ipswich, Winchester.
 „ 9th.—Diss, Ealing, Tunbridge Wells.
 „ 10th.—Birkenhead, Worksop.
 „ 17th.—Birmingham (N.R.S.), Helensburgh.
 „ 22nd.—Tibshelf.

The only Rose Show on the above list which extends over more than one day is that at Winchester, which will be held on the 8th and 9th of July.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

MANNERS AND CUSTOMS—A CATALOGUE COMMENTARY (Continued from page 266.)

Perle des Jardins (Levet, 1874).—Of good strong stiff growth with fine foliage, not liable to mildew, but easily injured by rain. It does well as a dwarf, but is a Rose of shocking bad manners. We want much a well shaped Tea of a good decided yellow to take the place of *Maréchal Niel* when it is off bloom; and *Perle des Jardins* is always promising to do this, and very rarely doing it. It comes divided or quartered or malformed in some way, almost to a certainty, during the summer, but manages to stave off execution of just judgment by the aid of better shaped and far more valuable blooms in the autumn. At that season it will often prove the only available sort which is really yellow, and even one bloom of this tint will make a wonderful improvement in a bouquet of autumn Roses. It is a good autumnal, and is quite worth growing for this purpose alone.

President (A. Paul & Son, 1860).—See Adam.

Princess Beatrice (Bennett, 1887).—I have considerable hopes of this Rose in a fine dry season as an early Tea, but have not had any good fortune with it yet. There is an H.P. Rose (*W. Paul, 1872*) of this name.

Princess of Wales (Bennett, 1882).—Of quite small dwarf growth and foliage, not liable to mildew, but requiring fine weather. This Rose, though unlike it in bloom and wood, is somewhat similar to *Comtesse de Nadaillac* in manners and customs. A small stem will sometimes swell and grow for a long time without opening the bud which, when it does come, will be a great and probably a good Rose, while a much stronger shoot of three times its length perhaps opens quickly and produces a much inferior bloom. The shape of the smaller flowers is rather weak and undecided, but there is no doubt about its beauty in form and every other quality, when it does come good, though it is seldom very large. It does well as a dwarf, but is too small in growth to be called a free bloomer or good autumnal. There is certainly one, if not two, H.P.'s of this name.

Rubens (Robert, 1859).—The N.R.S. and a well-known northern exhibitor catalogue this Rose as “moderate,” but it is a famous grower with me, producing strong good clean shoots with very fine foliage, and quite capable as a short standard of covering the wall of a one-storeyed building. It is not liable to mildew, is slightly pendent, and can stand a little rain. The blooms come very well, but the petals are thin. The fine half-opened buds are grandly supported by fine foliage, but the flowers are not very lasting in shape, and are difficult to show well, as they look weak and unsubstantial when shown with other Teas. It does not do very well as a dwarf, and is best in cool weather; capital, early and late, against a dwarf wall; very free blooming and a good autumnal, thriving well on lightish soil.

Safrano (Beauregard, 1839).—Of very strong growth with fair foliage, not liable to mildew, and suffering very little in rain. Very free blooming, but a small and thin Rose, quite weak and open in the centre. It is only useful for buttonholes, and, like all thin Teas, is especially valuable in the late autumn. When not another Rose is to be found in decent condition anywhere from the cold and the wet, a *Safrano* on a wall will come to the rescue. Hardy, and of good constitution, and ready to grow anywhere. Of the same colour as *Rêve d'Or* and *Sunset*, but the buds have sometimes the lovely red tinge of *Madame Falcot*.

Souvenir d'Elise Vardon (Marest, 1854).—Not of free growth or good constitution, but there ought to be at least one pretty strong shoot to each plant, not liable to mildew, but subject to injury from rain. The bloom comes generally well, though sometimes divided, and when it is fine on a strong shoot, and is taken at the right stage, you have, to my thinking, the first and best of all show Roses, H.P. or Tea. It is getting an old Rose now, but nothing can compete with it. Mr. B. R. Cant

says in his catalogue, “Invariably takes the silver medal as the best Tea or Noisette,” and I think this is still true. To be sure the medal very often goes to another Tea, but that is because *Elise* is not there. It blooms early, as in fact do all the Teas, but these come again, while it takes a long time to work up fresh shoots to produce this grandest of Roses, and the second blooms never equal the first. Where the season is late enough for it to be shown in anything like perfection, no successful rival in any stand or competition has yet been found; and there will be an opportunity of testing this on June 24th next at the N.R.S. early Show of Tea Roses at the R.H.S. Exhibition. It does well as a dwarf, has fine foliage, and the blooms are of the largest size, and all that can be desired in every good quality. In freedom of bloom and as an autumnal it is not good, for the growth is shy and the constitution delicate. This is the Rose for enthusiasts, with whom one perfect glorious bloom is worth a garden full of ordinary flowers. And every possible care should be bestowed in watching and protecting the bud, and diligently and highly feeding the plant until the medal bloom, the Queen of the Show, is cut.

Souvenir de Gabrielle Drevet (Guillot, 1884).—Not of strong growth or foliage, not liable to mildew or much to injury from rain, does fairly as a dwarf, and comes very pretty and promising as a bud, but opens hollow, small, and disappointing. I had nearly made up my mind to discard it, but some useful buds in late autumn have obtained a reprieve for it for the present.

Souvenir de Paul Neyron, (Levet 1871).—Is generally catalogued as vigorous, but I find it weak as a rule with small foliage, though occasionally a plant will grow fairly well, and there is not much injury generally from mildew or rain. The blooms come pretty well, of a very good shape sometimes, and of large size considering the smallness of the stems, but the plant is difficult to please, and will not often do well as a dwarf. It is a poor autumnal, but very free flowering in the season, every wood bud all over the plant trying to grow as soon as the flower buds are formed. This habit, which which is more or less common to a good many of the free-flowering Teas of moderate growth, makes it very difficult to find buds for propagation without sacrificing some of the coming blooms. A good Show Rose in a Tea box when you can get it, but not a variety suited to the million.

Souvenir de Thérèse Levet, (Levet 1882).—Is also generally catalogued as vigorous and a free bloomer, but it shows neither of these good manners with me. It can stand some rain, and the foliage is pretty good, but rather liable to mildew. It often just escapes being a thoroughly well shaped Rose, and is remarkable for its colour, which is the deepest red of any of this section, but neither bright nor velvety, soon gets dull after being cut, and does not show well against the pure whites and yellows of its sisters in a stand of Teas. The size is only medium, but the shape is occasionally good, and it has all the lasting powers of its race. Perhaps it ought to be more cultivated, but most fanciers of Tea Roses seem half ashamed of it, as if it had no business to be red; and few, I think, would consider it had any claim to first-class quality. Note, there is a *Thérèse Levet*, a pink H.P., of some little merit.

Souvenir d'un Ami (Defougère, 1846).—A really good old Tea Rose, of strong, healthy, vigorous growth, with very fine foliage, not liable to mildew or much injured by rain. This is one of the hardiest of the pure Teas; does well as a dwarf or on light soil; a free bloomer and a capital autumnal, and the blooms generally come well, of fine shape, substance, petal, size, and lasting qualities. The principal fault is that the flower soon loses its colour, and is apt to look dirty, and I am therefore the more inclined to hope that its pure white sport,

Souvenir de S. A. Prince (Prince, 1889), which seems to promise all the good qualities of the type, may be not only quite as good, but even an improvement on the original.

Sunset (Henderson, 1883).—A sport from *Perle des Jardins*, of the same colour as *Rêve d'Or*; a handsome, useful, strong growing Rose, with foliage of a beautiful red colour when young. It seems to me to have rather better manners than its progenitor in the matter of coming well shaped in the summer, but to be just like it in every other particular except colour.

The Bride (May, 1885).—A pure white sport from *Catherine Mermet*, of great value. With me this Rose also is an improvement upon the type, growing better and producing a larger proportion of first-class blooms, but similar to it in general manners and customs. This is very high praise indeed, and some may be inclined not to agree with it. I have the Teas only as dwarfs, and in this, as in all other cases, I am speaking of Roses as I personally find them.

Many of my criticisms may appear strange to growers in other soils, climates, and situations, and if I have treated any Rose unjustly I hope it may find a defender to plead its cause in the pages of the Journal.—W. R. RAILLEM.

HORTICULTURAL BUILDINGS AND HEATING APPARATUS.

[A paper read by Mr. Henry Hope, horticultural builder, at a meeting of Birmingham Gardeners' Association.]

(Concluded from page 286.)

SPECIAL HOUSES.

I WILL now proceed to Tomato houses. This fruit of late years has become exceedingly popular, and tons upon tons are grown in the south of England and the Channel Islands, specially for the English market.

All who have the best experience agree that span-roofed houses are the best for Tomato culture. They may be built to almost any length (one house that I know of being 750 feet long by 14 feet high and 45 feet wide), it is a matter of question though that such large houses are advisable, as the attack of any disease means the probable infection of the whole stock, whereas in smaller houses it is not probable that more than one could be attacked at a time. For the sake of economy a large number of these houses that I have seen have been built without any side lights; but there is no doubt that side lights are an advantage. Ample ventilation is most necessary, and to obtain this a roof light about 3 feet deep at the apex on both sides, should open the whole length of the house; the whole of the front lights on both sides should also be opened. These, as I have said before, should be worked in long lengths, as a saving of time and labour. The interior fittings of a Tomato house vary according to its size; for small houses in which there is only room for one row of plants on each side, the roof should be wired horizontally, the wires being about 12 inches from the glass. In the larger houses no wires are necessary, the plants being placed in rows about 2 feet apart, each supported by a stake. The heating apparatus should always be a powerful one, the number of pipes of course depending upon whether the house is for early or late Tomatoes. Pine houses are best span-roofed, of a low pitch; side walls should be built about 3 feet high, and the roof placed upon them without any front lights. The ground inside the house should be excavated, to give sufficient head room, and a bed built in the centre for the Pines. Bottom heat should be provided by pipes under the bed, and top heat by pipes all round the outside walls. A few air bricks in the wall is all the side ventilation necessary, and a roof light on one side of the apex for top air.

Melon and Cucumber houses can be either plain, span-roofed, or lean-to, of small size, with or without side lights. The interior arrangements should be a pit with bottom heat and a lid for opening on each side. A span-house with a path down the middle, or, in the case of a lean-to house a path along the back wall. The roof should be wired horizontally about 12 inches from the glass.

Of plant and flower houses there are of course a great variety. The chief among these are Orchid houses, and the primary condition in construction is ensuring the full exposure of the plants to the light, with sufficient means at command to break the force of the sun in the hottest weather. Orchid houses should, if constructed of timber, be made only of the best seasoned material, put together in a thoroughly substantial manner. The large amount of moisture in the atmosphere very soon shows up bad timber or workmanship. The houses may be either span-roofed or lean-to according to convenience. The aspect is not of very much importance, though span-roofed houses should for choice run west and south, and lean-to houses for tropical Orchids should face the south, and for cool Orchids the north. Houses of moderate breadth and height are best for most Orchids, but *Cattleya* and *Laelia* thrive best in lofty spacious houses.

Ventilation in the front lights for Orchid houses is, as a rule, not required, a roof-light at the apex being generally sufficient. Ventilation in all cases should be provided through gratings in the front wall, with flaps to open and close as required, and the pipes should be placed in such a position as to allow the air to impinge upon them, thus obviating cold draughts on the plants. As moisture is a very important factor in the growth of Orchids means should be adopted for giving a plentiful supply. A very good method is by having a trench about 18 inches deep in the centre of the path with a grating over, this trench to be kept filled with water. Vapour is given off by this means at a much lower temperature than by troughs on the pipes, and as the vapour should not be at a higher temperature than the atmosphere the advantage of this method is obvious. With regard to the staging for Orchid houses I think that slate slabs three-quarters of an inch thick supported on bars is generally acknowledged to be the best. On this a layer of firm pebbles, spar, or shells is placed. These are kept constantly moist by syringing. Some place the pots directly on this layer of pebbles or whatever it may be, while in some instances a slight mould latticework is laid down, and the pots placed upon this. Any advantage though that may be obtained from this latter method is, I think, doubtful.

The blinds to an Orchid house are an important matter, and there are really only two good ways for applying blinds. The first is by a stationary spring roller at the top of the roof, round which the blind itself is wound; the second is by a roller, running up and down with the blind. These should be in as long lengths as possible by strong cords and pulleys, which if properly schemed can be linked either from the inside or outside the house, and with the greatest ease.

The materials used are sail cloth for very heavy shading, and screen cloth or tiffany for lighter work. The stuff should be thoroughly soaked in a solution of corrosive sublimate before being fixed; this will protect the material both from insects and the effects of damp.

Ordinary greenhouses, either span-roofed or lean-to, fitted with either iron and slate or wood lath stages, usually answer for the bulk of flowers and plants not included in those I have previously mentioned, and I do not think I need go into any details of this class. The remarks I have previously passed as to construction will apply to these. Finally, all horticultural buildings should be prepared and fitted at the works ready for erection, and painted two coats of good oil paint before being sent away, and the joints when fixing put together with red and white lead. A very large trade is done by several firms in what are called amateurs' greenhouses. These answer their purpose admirably provided they are kept as greenhouses, but a very frequent cause of failure is that some people when building a greenhouse not only think they can grow ordinary plants and flowers, but attempt to make one end of it a stove, and very probably try Vines on the roof. Compound houses are a mistake, and if only one house is put up the first thing to decide is what is to be grown in that house, and if more than one class of plants or fruits is desired more than one house must be erected.



EVENTS OF THE WEEK.—The chief horticultural event of the coming week will be the Daffodil Exhibition and Conference, to be held in the Royal Horticultural Society's Gardens, Chiswick, on April 15th, 16th, 17th, and 18th. An extensive display of Daffodils is expected, and much interest will be imparted to the meeting by the papers to be read by various authorities, particulars of which appear in another column. With regard to the Scientific Society meetings, the Quekett Club meet on the 11th inst., at 8 P.M.; the Royal Botanic Society, on the 12th inst., at 3.45 P.M.; the Royal Geographical Society, at 8.30 P.M. on April 14th; the Society of Arts, at 8 P.M., on April 16th; and the Royal Meteorological Society, at 7 P.M. on the same date.

— COMMUNICATIONS.—Owing to the pressure incident to the season (Eastertide) some communications with which we have been favoured cannot be inserted this week.

— PROPOSED HALL OF HORTICULTURE.—We are informed that the amount promised for this most desirable object is little short of £10,000. This is chiefly by amateurs, and an appeal, which we are bound to regard as a most reasonable one, is now being made to persons who are engaged in trades intimately connected with horticulture, and on the result of that appeal will largely depend the success of the project. There cannot be a doubt that the tendency of an important central hall of the nature suggested in the greatest commercial city in the world would be in the direction of trade development, because it would be an incentive to an increasing number of the wealthier portion of the community to engage in horticultural pursuits. It is hoped that there will be a good attendance of nurserymen, seedsmen, horticultural builders, engineers, and others, not of London only, but from the provinces, at a meeting to which they are invited to attend at 1.30 on the 22nd inst. at 117, Victoria Street, Westminster.

— THE WEATHER IN THE SOUTH during the past week has not been marked by any special characteristics. The N.E. winds prevailed the greater part of the time, but on Sunday there was a change to a westerly direction with rain; but on Monday the former direction was renewed, and on Tuesday there were several storms of snow, hail, sleet, and rain. Fruit trees are expanding their flowers, Pears and Plums especially, and in a day or two will be at their best. Peach trees on walls have flowered well in several cases, and there is promise of fair crops.

— THE WEATHER IN THE NORTH.—March 31st to April 7th. On three nights of the week frosts of 3° were registered, with heavy hoar frosts. Early planted Cauliflower, Pear blossom, and the blooms of Rhododendrons have suffered considerably. As a rule the days have been extremely fine, with bright sunshine. A cold wind from the north-

west sprang up yesterday, and still continues pretty high, and several showers have accompanied it. Temperature during the night 38°.—B. D.

— **GLUT OF POTATOES.**—The following paragraph has appeared in some newspapers: "There is an extraordinary glut of Potatoes in the Peterborough district, where the farmers have vast quantities on hand. The quotation they receive from the London markets is only 20s. a ton, and local prices, as a rule, range from 1½d. to 2½d. a stone." When a glut of inferior fruit is poured into the market it is made a pretext for condemning the production of superior samples, so we may now expect to be told how foolish it must be to continue growing Potatoes.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of this Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th instant, at 7 P.M., the following papers will be read:—"The Cold Period at the Beginning of March, 1890," by Charles Harding, F.R.Met.Soc.; "Note on the Whirlwind which Occurred at Fulford, near York, March 8th, 1890," by J. E. Clark, B.Sc., F.G.S.; "On the Possibility of Forecasting the Weather by means of Monthly Averages," by Albert E. Watson, B.A., F.R.Met.Soc.; "Rainfall of the Globe," by W. B. Tripp, M.Inst.C.E., F.R.Met.Soc.

— **GARDENING APPOINTMENT.**—Mr. H. May, late foreman at King's Ride, Ascot, as head gardener to Lady Keane, Rosemount, Sunninghill.

— **MR. GLADSTONE AT WEYBRIDGE.**—We are informed that the veteran statesman, when on a visit to Admiral Egerton last week, was taken by his guest to see Mr. G. F. Wilson's garden. He evinced much interest in what he saw, admiring the flowers greatly, especially the Oakwood Blue Primrose, that attracted so much attention at Westminster on Tuesday last.

— **THE SPARROW PEST.**—A correspondent, "B.," writes:—"May I ask if there is any way known to keep down sparrows? My gardens are infested by them, and without nets it is impossible to grow Currants, Strawberries, or any kind of seed. Scarecrows are of no use. May I use poison in any shape?" We shall be glad if our readers can give the desired information.

— **SPRING FLOWERING PLANTS.**—Foremost amongst these, *Anemone appenina* deserves special mention, large beds of this very pretty species, of dwarf habit and pale blue flowers, yielding sheets of flowers under a wall with an east aspect, and close by is a large bed of *Tritelecia uniflora*, a mass of flower of a shaded pale lilac and white colour. These masses are now in full beauty at Messrs. Thomson's Birmingham nurseries. *Ranunculus montanus* is another beautiful companion plant, a miniature Buttercup, now giving a profusion of golden yellow flowers.

— **DIVIDING HERBACEOUS PLANTS.**—Those who have to contend with a wet, heavy, and consequently cold soil during the winter months, will find the present a good time to increase these plants by division. Carefully cut through with a sharp edging knife, lifted with a fork, and planted quickly, they will start into growth at once, whereas if the dividing is done in the autumn little progress is made until the present time. The slugs, too, play havoc with the tender shoots which would just now be springing up through the soil. It is difficult to prevent this, for they prey upon the tender morsels just below the surface. It is a good plan to clear the growths and apply a sprinkling of soot about them, replacing the soil again.—E.

— **POINSETTIA PULCHERRIMA PLANTED OUT.**—I lately saw in a small lean-to house, the front part of which is devoted to Melons during the summer, the *Poinsettia* planted in a narrow border at the back, the branches being trained against the wall, the main stems in a horizontal manner. This season twenty-five heads were produced, which were large and richly coloured, their appearance being considerably improved by the ample deep green foliage with which the plant was covered. Some of the shoots had grown 5 feet long from the base where pruning was done the year previous. At the present time many small bracts are pushing from short side shoots, which are being forced from the joints since the main blooms were cut. To obtain strong growth and subsequently strong bracts the current season's growth should be cut in to within one or two eyes of the base, as in the case of allowing a considerable extension of last year's growth with a view to extend the size of the plant in any direction growth is not nearly so freely or strongly made, but by concentrating the whole energy of the plant into fewer branches more strength is given to subsequent growth and finer bracts. Abundance of water to the roots while growth is active is beneficial, and indeed necessary.—M.

— **DEATH OF MR. MICHAEL MIDDLETON.**—Mr. M. Middleton late gardener at Admiralty House, Bermuda, died of consumption at Hamilton of that place on the 26th February last at the early age of forty-four. Twenty-one years ago Mr. Middleton was one of a group of about a dozen young men, then students in the Royal Gardens, Kew. This group consisted of Englishmen, Scotchmen, Irishmen, one Welshman, two Germans, and one Dane. They were contemporary with Mr. Kingston, who fell a victim to his love of botany in the Herbarium not many years after, with Mr. R. I. Lynch, now of the Cambridge Botanic Gardens. They sat at the same examinations both at South Kensington and for the Society of Arts, and Mr. Middleton was not the least successful among his compeers. These young men were soon scattered. Three went to India; one I last heard of in a good position in America; the Germans went to fight for their Fatherland, and have not been heard of again by the writer; the Welshman took to preaching, and others to various parts of the United Kingdom. After some few years' experience in gentlemen's places the late Mr. Smith showed his confidence in him by getting him to take the place of a sick foreman for some time, and afterwards recommended him to General Lefroy, with whom he went for a term of five years while he was Governor of Bermuda. At the end of that time he returned to England with his master, and was for a short time with a gentleman in his native county of Northumberland. He afterwards went to America and in various parts of the States as far west as Dakota, where his health broke down, and was advised to seek the more salubrious climate of Bermuda. After recovering from his illness he was appointed to the Admiralty Gardens, where he was till shortly before his death.—R. INGLIS.

— **A BEAUTIFUL HANGING BASKET.**—During a recent visit to Childwall Hall, Liverpool, I was particularly struck with a basket filled with *Lachenalia pendula*. This grand old occupant of our greenhouses it would be impossible to see to greater advantage, the basket in question being about 2 feet wide by 2½ feet deep; the whole perfectly draped with graceful foliage and spikes of bloom a foot long. Those who have not seen *Lachenalias* grown in this way can form no conception of their almost matchless beauty. Mr. Winkworth proposes exhibiting this plant at the Spring Show of the Liverpool Horticultural Association, and if staged in the perfection I saw it, will prove a striking feature.—VISITOR.

— **THE WEATHER LAST MONTH.**—March was cold and wintry for the first five days. The minimum temperature on the 4th (12°) was the lowest we have any record of for March, and the lowest this winter here. The remainder of the month was bright weather on the whole, with the exception of 18th to 22nd. Highest shade temperature was 62° on the 17th, lowest 12° on 4th; lowest on grass 12° on 4th. Barometer.—Highest, 30·60 at 9 A.M. on 3rd, lowest 29·13 at 9 P.M. on 24th. Rainfall.—Total, 2·23 inches, which fell on eighteen days, and 0·68 inch of which fell on the 19th. Wind was in a westerly direction twenty-five days during the month. The garden spring ran 23 gallons per minutes on 31st.—W. H. DIVERS, *Ketton Hall, Stamford*.

— **SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, FOR MARCH.**—Mean temperature of month, 43·6°. Maximum on the 12th, 62·2°; minimum on the 4th, 19·7°. Maximum in the sun on the 26th, 116·0°; minimum on the grass on the 4th, 12·6°. Mean temperature of the air at 9 A.M., 44·1°. Mean temperature of the soil at 1 foot deep, 41·9°. Nights below 32°, in shade ten, on grass seventeen. Total duration of sunshine, ninety-four hours, or 26 per cent. of possible duration. We had five sunless days. Total rainfall 1·72 inch; rain fell on twelve days. Average velocity of wind, 13·8 miles per hour; exceeded 400 miles on eight days, and fell short of 100 miles on one day. Approximate averages for March—Mean temperature, 41·8°; sunshine, ninety-eight hours; rainfall, 1·61 inch. A mild month, with average rainfall. The mean temperature is higher than in any of the last fifteen years, except 1882. Vegetation very forward.—JOSEPH MALLENDER.

— **FISHES IN A FOUNTAIN BASIN.**—I have a fountain basin in my garden about 14 feet diameter and 2 to 3 feet deep; a quantity of a filamentous weed grew in it, which kept the water very clear and bright; but it grew so thick, and the basin had not been cleaned out for so long, that I determined to clean it out, which I did. I threw back a small quantity of the weed, thinking it would grow again, but it did not, and now I cannot see the water clear. I have Lilies and other water plants, but they have not the same effect. I should be glad if you would kindly tell me the name of the weed. I fancy it is what is called the American Pond-weed, which grows so rapidly, and chokes up canals, &c., in some places. I may add that the golden orfe is a capital

fish for keeping in such places. I put nine in about two years ago, and have not lost one. They are very lively, and apparently hardy. Gold fish I cannot keep any length of time. The small Prussian carp do very well, and breed.—B. [The weed referred to is probably *Anacharis alsinastrum*.]

— **STAPHYLEA COLCHICA.**—At a recent meeting of the Birmingham Gardeners' Association, when Mr. Groves read a paper on "Insect Pests," Messrs. Hewitt & Co. exhibited a plant in full flower of this charming hardy shrub in a forced state, but the "forcing" was of a very mild character. These plants are kept under glass to make early growth, taking care to keep the shoots short by pinching when necessary, and the roots confined to the pots, plunging them out of doors to secure a well ripening of the wood. The plants are placed in a cool house during the winter, and are gradually brought on in moderate warmth. At Solihull they had a supply for Easter, and the *Staphylea* will, when better known, be much in demand as a decorative plant and for cut flowers.—D. S. H.

— **THE READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—A well attended meeting of this Association was held on Monday, the 31st ult. Mr. W. Lees occupied the chair. After the usual business had been disposed of Mr. George Cannon of Ealing read an able paper on "The 'Outside' Cultivation of Roses." Having referred to the early history of the "Queen of Flowers," and its popularity among the Greeks and Romans, Mr. Cannon traced the progress made in culture and in the raising of new varieties during the last fifty years, and gave lists of varieties found most suitable for various purposes. He also gave sound advice on the selection of stocks for different soils, and clearly explained the details of culture requisite in order to achieve the best results. A discussion followed, and Mr. Cannon was warmly thanked for his practical paper. A fine healthy specimen of *Angræcum sesquipedale* was exhibited by Mr. Woolford, one characteristic of this variety being the long tail depending from the base of the flower.

— **MESSRS. SUTTON & SONS'** valuable work on the "CULTURE OF VEGETABLES AND FLOWERS" has reached a fourth edition of 5000 copies, 13,000 having been sold of previous issues. This is a remarkable circulation for a work of this size and character. It is a substantial well bound volume of 410 pages, including an excellent index. The practical matter occupies 402 pages, and is as good as the paper and print on and by which the various cultural details are represented, and that is saying a great deal. Vegetable growing is made plain, and no one can err in following the instructions. Similar remarks apply to the cultivation of all the popular kinds of flowers. A chapter is devoted to the formation of lawns from seeds, also to insect and fungoid enemies, admirably illustrated. It is a standard work for the libraries of professional and amateur gardeners.

— **WEeping ASH AT NOSTELL PRIORY.**—There is a very large and beautiful specimen of the Weeping Ash growing in the grounds adjoining the garden at Nostell Priory, the seat of Lord St. Oswald, near Wakefield, Yorkshire. Its measurements, taken a few days ago, are as follows:—The girth of the stem at 2 feet from the ground is 7 feet—the narrowest part of the stem; at 4 feet up it is 7 feet 3 inches in girth; and at 6 feet up it is 8 feet 6 inches. At this height the branches begin to spread upwards and outwards till they reach a total height of about 50 feet, and a diameter of 67 feet the broadest way through them, the top being considerably flattened at the sides by the proximity of the agent's house on one side, and a fine Holly hedge on the other. When in full leafage in the summer season it affords a cool shady retreat, and forms an exceedingly graceful object—a miniature mountain of greenery—in the beautiful grounds around the Priory, one of the many fine old family seats so numerous in the district of Yorkshire.—J. H.

— **BOUvardIAS.**—When I penned the few lines relative to planting out Bouvardias, which appeared at page 156, I did so more with a view to show that good results could be obtained by the practice than to criticise Mr. Bardney's excellent article on their culture entirely in pots, page 12. I had no wish to convey the idea that better results could be achieved by the method I described, a method which he pronounces "excellent in every way, &c." (I thank him for the compliment), but why he should in the next paragraph proceed to question the soundness of the practice, or part of it at least, is to me not quite clear. I place out these and other plants during the summer to save time and labour in watering, for in these days when much is expected and often but slender means allowed to accomplish it, any help, however small, which will enable an overworked brother gardener

to produce what is required with less labour than formerly, is a step in the right direction. As Mr. Bardney wishes to know why I partially lift the plants a fortnight ago or so before potting, I may say that I do so in order to ensure (as he rightly supposes) a more compact ball of roots; and I water and syringe to prevent a serious check taking place through the operation. I do not say that they receive no check—they must; nor would I undertake to transfer a strong, healthy plant of anything from the open ground to a pot without a check; but I think it need be but a very temporary one, and therefore not of a "serious" character. A method that will afford strong bushy plants with an abundance of flowers at a minimum expenditure of labour is surely worth a trial where the situation is suitable. Were I as far north as your correspondent, I certainly should not turn out the whole of my stock.—T. S., *Henbury Hill*.

— **BIRDS AND FRUIT TREES.**—Although a lover of birds I am forced to the conclusion that the sparrows are more numerous and destructive than profitable. I regret to have to say this of them, as sometimes they are the gardeners' friends. I always find that birds are most destructive to fruit buds during rainy and open weather. In times of drought they do little harm. A proof of that is afforded this year with us, not a single fruit bud of the Victoria and other Plums has escaped them. The blue tomtit (*Parus minor*) is as bad as the sparrows. Red and White Currants are almost as badly attacked, and Gooseberries are much spoiled, even the Morello Cherries did not escape. What is the cause of so great an increase of sparrows, and I may add mice and rats? I answer the wholesale destruction by gamekeepers of the natural enemies of vermin, such as owls, hawks of sorts, and all the weasel tribe.—W. T.

— **FRANCISCEAS.**—I find these very useful plants and a hint on our present treatment may be useful. We prune them back to within a few eyes from where they started last year, and place them in brisk heat. After they have commenced growth they are repotted if they need it. If the plants are already in pots large enough, and the drainage is good, feeding with weak stimulants may be resorted to. If the drainage is defective and the soil in an unsuitable condition turn out the plants, and carefully work from amongst their roots a good portion of the old soil, and repot the plants in the same size with equal parts of peat and fibry loam with a liberal addition of sand. These plants will do very well in either all peat or all loam and sand, but the mixture appears to suit them admirably. The soil should be pressed firmly into the pots, and where practicable plunge the pots in gentle heat until root activity has commenced. The plants must be watered carefully at first.—N. G.

— **ALLAMANDAS.**—When grown in pots the roots of those needed for flowering early may be reduced by one-half, and returned to the same size pots. If dry soak them in tepid water, and allow them to drain thoroughly before potting them. Use a compost of fibry loam, one-seventh of manure and sand, and press it firmly into the pots. The plants afterwards may be stood in the stove, or better still plunged in slight bottom heat, and syringed freely until they start into growth.

— **PLANTS OF ADIANTUM CUNEATUM** that have been cut over and rested in a temperature of 50° should be pushed into growth. If they are in pots as large as it is advisable to have them in, they may either be cut in two or the roots reduced. The last method is the best, as the plants quickly start again into growth, and produce large fronds long before the others. Where it is possible give the plants a shift into larger pots. The pots should be liberally drained, as the plants root abundantly near the surface. The new soil may be pressed moderately firm into the pots, so that the old soil will not be left dry by the water passing through the lighter material. These plants do better without peat than with it in the compost. We have long since discontinued its use. They grow remarkably well in loam and sand, but not so rapidly as in a lighter and more open compost. Where leaf mould that has been well prepared is plentiful, nothing better can be used, with the addition of sand, lime rubbish, or any gritty material. Our compost consists of one-third loam to two-thirds leaf mould and lime rubbish. They grow freely and root splendidly in this compost, which remains perfectly sweet when plenty of lime rubbish is added. If slugs exist about the crowns, dust them with soot, and the slugs can soon be picked off. Place the plants after potting in a temperature of 60°.—B.

— **THE BOG GARDEN AT HIGH BEECH.**—I was very pleased to read in a recent issue of the Journal that Mr. G. Paul considers his bog garden a success. I feared it would be otherwise. This particular spot has always been an object of interest to me. I well remember its con-

struction, and at that time I had a keener interest in its welfare than its owner. It was in my early gardening days, but at date I was allowed the free run of the nursery, and many a useful lesson have I learned therein. At one period I had a list of the whole of the occupants of the garden. During the last four years I have only been able to pay occasional visits, but I must confess I have lost interest in many of the occupants of the various corners and pools, for to appreciate bog plants one must be in constant association with them. In my last visit I noticed many new occupants, and missed many old friends; but I suppose it is the same in every garden—gaps in the ranks will appear. At present everything seems springing into life. The excellent collection of Cactuses are blooming, except the later forms, such as *purpurascens* and *monstrosa*, but they will be better in a fortnight. The Orchises are starting very vigorously. *Primulas denticulata* and *japonica* seem to be the only species that are really at home. I do not remember seeing *japonica* flower better than in this bog garden. The other species is in full flower at the present time. The Winter Hawthorn thrives splendidly in the pool, and flowers freely, even in November. The *Spiræas* are perfectly at home, so are the *Sarracénias*. These interesting plants are always worth a careful study. The *Azalea mollis*, planted on the bank surrounding the garden, caught my eye; they are literally a mass of flower buds. Irises are successful here speaking generally, and they flower most freely. The various Rushes also thrive very well, but I must take adieu of the garden for the present.—JAMES B. RIDING.

—HYACINTHS AT DUNEVAN.—The beds of these, which are a prominent feature in Mr. McIntosh's beautiful and highly kept garden every spring, are now in full beauty. There are about a dozen beds, the central one displaying about a thousand spikes. Each is supported as neatly as if the plants were grown in pots, and more neatly than they are often seen in greenhouses, the stakes being of galvanised wire. The Hyacinths are in mixture, two-thirds of them single and one-third double varieties, the employment of the latter giving a massive appearance to the display. The beds were broadly margined with Crocuses, the green arching leaves of which form a pleasing fringe to the flowers they encircle. Tulips are advancing, but, like many others we have seen, are not likely to quite reach the usual standard of excellence, and judging by what we have heard these flowers have not, as a rule, been so good in greenhouses as was hoped for. There is good promise of Rhododendrons at Dunevan, where the collection is choice and extensive, and similar remarks apply to the hardy fruit garden, which contains many model trees well studded with blossom buds. All who have the pleasure of Mr. McIntosh's acquaintance will rejoice in his improved health; and though he cannot, as was his wont, traverse his grounds daily, with wild birds following him to be fed, they come to his windows to see what he has for them, and whichever room he occupies find him out. Thrushes, robins, finches, nuthatches are alike on friendly terms, but do not quite equal the robin that we have seen rest in his beard and take crumbs from his mouth. The Dunevan grounds and gardens always reflect credit on Mr. T. Taylor, who has had charge of them for about twenty years.

FLORAL NOTES IN SEASON.

AFTER TREATMENT OF BULBS.—If bulbs grown in pots are intended to be used next year for pot culture or flowering out of doors they must be thoroughly ripened, fully exposed, and grown continuously without a check of any kind. The custom is, when flowering is past, to throw them aside, to become either water-logged or as often dried at the roots before half the growth has been completed. Of all the methods of treatment after flowering for Crocuses, Hyacinths, Narcissi, Irises (especially *reticulata*), *Dielytras*, Tulips, Hepaticas, the Chinese "Joss" or Sacred "Lilies" (*Polyanthus Narcissi*), &c., I find the best is to plant them in a warm sunny border. If that is not convenient, as in many town gardens, then sink the pots to the rims. If that cannot readily be done either, greater care in watering—giving a stimulant of some of the advertised manures liquified now and then—is indispensable. The bulbs can be shaken out where the foliage has withered.

FUCHSIAS.—It would be a pity to allow the sun of their popularity to grow dimmed through the temporary attraction of something not half so good, though labelled "new." Remove them from under the stage or potting shed, or wherever stored, if not already done. Shake out the old soil, repotting in a fairly rich mixture of yellow loam with a little sand, and place them in a warm temperature until they break. Sun heat alone will be necessary after growth has started. Cuttings with me taken last autumn of good varieties are coming into flower now. To secure a young stock to form handsome plants for the autumn, cuttings taken now, if possible at a joint, inserted in a sandy medium—all the better covered with a bellglass, and with a temperature of at least 55° Fahr.—will be rooted in a few weeks, and may be potted into a somewhat

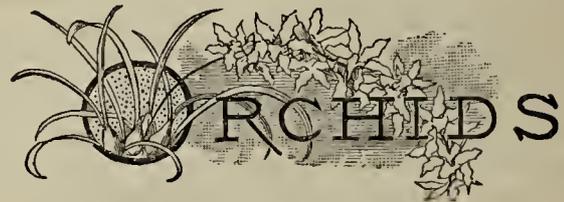
poor sandy loam at first, to prevent a too luxuriant growth during the summer months.

DAHLIAS.—Those lifted in the autumn—and I have found, though our winters are comparatively mild, it is best and safest to lift good named varieties—will now be slowly moving, even under a greenhouse stage, where little or no forcing has been resorted to. Amateurs not having proper facilities for striking cuttings will easily increase their stock by division of the tubers, always making certain of having a couple of eyes. Cuttings root best in silver sand, on a hotbed, and with a temperature of 70°, or near it. As the cuttings progress they will be repotted and kept as cool and as stocky as possible. Long and spindly growth spoils the chances of fine flowers. Single Dahlias have not maintained their popularity, while those of the Cactus and decorative varieties are steadily competing with the show and fancy sections. Those wishing to raise new varieties, or to observe the effects of hybridising, will be sowing seed, if they have not already done so. There is always a peculiar zest in watching the progress of seedlings, and all the more if they have been home-raised.

SPARMANNIA AFRICANA.—Of Cape origin, this is far easier to succeed with than many floral beauties from that colony. It is almost hardy, and if properly ripened in the full sunshine in summer and autumn, flowers the whole winter with ordinary greenhouse treatment. The stems may be cut back now, and the cuttings rooted to form young plants; but it is only in the second or third year its long-continued flowering peculiarities are fully developed. It is unlike any other flower, inasmuch as it is the peculiar bunch of feathery looking stamens and not the corolla that attracts most attention, while it will contrast, either in foliage or flowers, with any other occupant in the conservatory. On occasions it is admirable for dropping into vases for decorative purposes.

PRIMULA OBSCURICA.—I am under obligation to say a good word for this accommodating Primrose, inasmuch as it has proved a continuous flowerer in my greenhouse, sitting room, and windows, since last autumn, and still the flower spikes increase and multiply. It would have been a gross blunder had the cry that "poisoning" resulted from touching the leaves, scared people away from growing it. I am constantly touching it, and yet I have found no inconvenience therefrom; but this is not meant to discredit those who have stated their experience is otherwise. I have found it responds readily, like *Primula Harbinger*, *P. rosea*, and *P. marginata*, to diluted liquid feeding, but more so than any other. From this time forward after flowering will be a good time to divide the crowns where an increased number of plants is desired. A good precaution is not to overpot.

DOUBLE PETUNIAS FOR GREENHOUSES.—Except with peculiar facilities for protection from rough weather and slugs, I am for wholly growing these indoors. They are so beautiful and rich in colour, grow so large and unwieldy, and are produced in such profusion, that I consider them too good for ordinary outdoor culture. Take those delightful combinations of green, rose, purple, lilac, white, crimson, rosy magenta, &c., some crimped, folded, fimbriated, suffused, veined, edged and tipped, or with a number of those characteristics in the same flower, and tell me if you know any other flower, except some of the *Cattleyas*, so curiously attractive. My advice to anyone having a greenhouse is to get some good named varieties well rooted just now, rather than depend on the chance of raising a number of worthless seedlings, all inferior to named sorts, and give them at first small pots until these are full of roots. A 4½-inch pot will be ample the first year if liquid feeding is resorted to, and as in my case, blooms may be guaranteed for nine months out of twelve. If large specimens are desired the plants can be shifted accordingly. A distinct dozen would be *Rubens*, *M. Buchner*, *Labyrinth*, *Crimson King*, *Aida*, *Mrs. Shirley Hibberd*, *Fimbriata*, *Delicata*, *Telephone*, *Madame Sawyer*, and *Lady Lorne*. By taking cuttings now and then a stock is continuously maintained, not merely the year round, but in perpetuity.—W. J. MURPHY, *Clonmel*.



LELIO-CATLEYA HIPPOLYTA.

THE list of Veitchian hybrid Orchids is still steadily extending, and scarcely a meeting of the Royal Horticultural Society's Committee passes without some newly flowered production making its appearance on the tables. At the gathering in the Drill Hall on March 25th last a bigeneric hybrid bearing the name given at the head of this note was exhibited and unanimously certificated by the Committee. It was stated to be the result of a cross between *Cattleya Mossiae* and *Laelia cinnabarina*, both well known Orchids, and it was comparatively easy for anyone familiar with the parents to trace their relative influence. The *Laelia* has undoubtedly very greatly predominated both as regards the shape and colour of the hybrid, but the *Cattleya* has exerted a modifying effect chiefly upon the colouring, and the result is a uniform soft and distinct orange

buff shade, brighter and more lovely than "buff" tints are usually, but totally distinct from the peculiarly rich orange red of *Lælia cinnabarina*. The flowers of the hybrid have a graceful outline, the narrow sepals and petals spreading equally; they are nearly 5 inches in diameter from tip to tip of the sepals, the latter being half an inch in diameter and of equal width throughout. The petals are just over 1 inch across at the widest part, tapering slightly both to the base and the point, and this difference between the sepals and petals furnishes a ready mark of distinction between the present hybrid and *Lælia flummea*, derived from *L. cinnabarina* and *Lælia Pilcheriana*, in which the divisions are of equal size. The lip has a partially closed appearance, like *L. cinnabarina*,

that the resemblance is chiefly in the shape of the lip. The sepals and petals are very distinctly spotted with violet purple on a yellowish ground colour, and the heavy purple parallel veins in the lip are a marked feature.—L. CASTLE.

HIPPEASTRUMS AT CHELSEA.

THOUGH still familiarly known as Amaryllises in many gardens, the plants denoted by the title *Hippeastrum* are gradually becoming identified with their correct designation, notwithstanding the fact that this is decidedly less euphonious than the superseded name. Still the differences between the two genera are so clearly marked, that the distinction



FIG. 38.—LÆLIO-CATTELEYA HIPPOLYTA.

and it has a slight suffusion of crimson at the tip and in the throat.

DENDROBIUM ATRO-VIOLECEUM.

As described in the report on page 304 this *Dendrobium* is one of the most distinct yet introduced, and though it cannot be regarded as one of the most beautiful it yet possesses some claims to attention for its peculiarity of colouring. The plant submitted to the Orchid Committee on Tuesday was not in good condition—indeed, the impression seemed to be that it was an imported plant with just sufficient strength to produce its flowers, and that its life was nearly exhausted; at least there was no sign of growth, and the pseudo-bulbs had no leaves, and it was owing to this probably that the first-class certificate proposed for the plant was lost by a small majority. The flowers remind us at first glance of *D. Veitchianum*, the true *D. macrophyllum*; but on closer examination it is seen

should be observed, even in popular horticultural nomenclature. In Mr. J. G. Baker's excellent monograph of the Amaryllideæ, the genera named are placed in different sections of the order, and while thirty-eight species of *Hippeastrum* are described, the genus *Amaryllis* is reduced to one species, the garden favourite *A. belladonna*, which ranks next to the *Crinum*s, and is distinguished botanically from the *Hippeastrum*s by characters derived from the capsule and seeds. Under the *Hippeastrum*s are ranked the comparatively few species that have been concerned in the production of the present beautiful race of hybrids, which, in stately and imposing form, brilliant colours, and decorative value, are probably unsurpassed. The history of the gradual development of these handsome plants has been previously related in this Journal, and it is not necessary to repeat it, but it is worthy of remark that only about a dozen species have been employed, the first to be so utilised being *H. reginæ* and *H. vittatum*, which Mr. Baker tells us were first crossed in 1799 by a watchmaker at Prescott named Johnson, and from these, with other species, numbers of hybrids were raised, and no

less than 100 with Latin names were enumerated in Sweet's "British Flower Garden" in 1830.

It is only within the past twenty years, however, that the greatest progress has been made, and previous to then the flowers of the hybrids raised were much smaller, and in most instances greatly inferior in form and colour to these we now have the opportunity of admiring. Much credit is due to Messrs. J. Veitch & Sons of Chelsea for the attention they have given to the Hippeastrums, and the results they have achieved in recent years have been amply sufficient to satisfy all who are interested in the improvement of plants. At a meeting of the Royal Horticultural Society a short time since a group of these was shown, together with some of the earliest forms to illustrate the advance that had been made, and the contrast was most striking. It is only by means of comparing the extremes of variation in a class of plants that an adequate idea can be formed of the progress made. We become familiar with the improved types, and do not so readily realise what has been done to effect this improvement. At Chelsea for the past few weeks the Hippeastrums have been in fine condition, and they will continue attractive for two or three weeks more, a sufficient indication of their lasting qualities. A commodious span-roof house is devoted to them, a central and two side beds being filled with bulbs, and there are over 2000 spikes bearing expanded or expanding flowers. It is quite a forest of spikes, and the large flowers of the most brilliant shades of scarlet are quite dazzling on a bright sunny day. It would be unnecessary to enumerate all the varieties represented, though all are beautiful, still there are differences which render some of them easily distinguishable and unquestionably superior to the others. So large a number of seedlings also have been raised that novelties are constantly appearing, and scarcely a day passes without some addition being made to the already long list of those found worthy of names. A few of the principal novelties of the present year are briefly described in the following notes.

Champion.—A magnificent variety of the Empress of India type, the flowers exceeding 10 inches in diameter, the divisions $3\frac{1}{2}$ inches across, and slightly recurving, giving a distinct character to the flower. The colour is a most brilliant shade of scarlet, and the variety appears to be a strong one, the bulb bearing two fine spikes. It has been certificated by the R.H.S. this year.

Lacina.—A delicately pretty variety, the flowers white with a few rich crimson streaks in the upper divisions.

Attraction.—A finely formed flower, with broad divisions, crimson scarlet, and a white central bar.

Dromio.—A particularly rich deep shade of scarlet, unbroken up to the centre; the flowers of moderate size but excellent shape, and a fine contrast with the lighter varieties.

The Kaiser.—Flower of excellent shape and substance, the colour a light, clear, bright scarlet, very effective.

Ossidine.—Light scarlet, a clear white bar in the centre of the division, the flower of excellent shape.

Agenora.—A superior variety of the Dr. Masters type, rich deep scarlet, large flowers.

Egeria.—Salmon scarlet, a distinct and pleasing tint, the flowers well formed, a white bar in the centre of the divisions.

Cypria.—One of the champion type, flowers of capital shape, the colour a rich scarlet.

Keraunos.—Light scarlet, broad white central bar in each division, free, four flowers in a spike.

Acanthia.—A neat flower, bright scarlet, with a white central star; effective and distinct.

Eros.—Flowers of good shape, boldly veined with scarlet on a white ground, and with a white central bar in each division.

Haidee.—Rose scarlet, a warm and distinct shade of colour, the divisions very broad. A handsome novelty.

Arion.—White suffused with a rosy tint, and veined with a similar colour.

Attila.—A pale delicate tint of salmon, with white central bars and base. One of the most distinct of the light coloured varieties.

Dorothy.—Excellent shape, veined scarlet on white. A graceful flower in poise and shape.

Ino.—A charming variety, evenly and holdly veined with scarlet on a white ground. Very free.

Those named are all seedlings that have flowered for the first time this year. In addition to them there are the many handsome varieties of recent years, and amongst the best of these may be noted Her Majesty, Illustrious, Nemesis, Mirabella, Aureole, Exquisite, Marcellus, and King Lear as possessing prominent attractions, but there are numbers of others equally as good.—VISITOR.

ROYAL HORTICULTURAL SOCIETY.

APRIL 8TH.

THOUGH following the holidays so closely the meeting on Tuesday was very interesting, the exhibits of plants and flowers being varied and bright in a more than ordinary degree.

FRUIT COMMITTEE.—Present: Sir Charles W. Strickland, Bart., in the chair, and Messrs. T. Francis Rivers, R. D. Blackmore, P. Crowley, J. Smith, H. Balderson, A. Watkins, W. Warren, G. Wythes, J. Hudson, J. Smith, and J. Wright. Their duties were light, as is usual at this period of the year.

Splendid fruits of Auguste Nicaise Strawberry were brought by Mr.

J. Smith from Mentmore. They were equal in size and appearance to first-class British Queens grown in the open air. The variety is extensively grown in pots by Mr. G. Wythes at Syon, also by Mr. J. Challis at Wilton. An award of merit was adjudged to it as a good variety for forcing. It is not considered generally reliable for outdoor culture. Mr. Smith also sent excellent fruit of Nohle, but not equal to those of Auguste Nicaise. Mr. W. Miller sent large basketfuls of fine Mushrooms, and was accorded a vote of thanks.

A dozen varieties of Broccoli were brought from the Society's Gardens those which found the most favour with the Committee being Cooling's Matchless, Leamington, and Mammoth (Veitch), the White and Purple Sprouting varieties were also considered useful vegetables.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., Messrs. R. Dean, Shirley Hibberd, T. Baines, H. Herbst, D. T. Drury, T. W. Girdlestone, P. Blair, H. B. May, R. B. Lowe, D. Jeffries, B. Wynne, G. Paul, and the Rev. H. H. D'Omhrain.

From the Royal Gardens, Kew, came a collection of hardwooded and decorative plants, such as are just now employed with excellent effect in the greenhouse at Kew. Some of the most notable were *Chorozema Soulangeanum*, with orange and crimson coloured flowers, produced very freely; *Eupatorium atro-ruhens* is remarkable for its large heads of purplish flowers; the white-flowered *Eupatorium probum* was also shown; the purplish *Tetratheca pilosa*, the scarlet-flowered *Agapetes huxifolia*, the bright yellow *Goodia lotifolia*, a small plant of *Mackaya bella*, several *Grevilleas*, *Polygalas*, *Eriostemons*, and *Agathosmas* were included. D. T. Hodges, Esq., Lachine, Chislehurst, had a group of Primulas, including several pretty species (bronze medal).

Messrs. Paul & Son, Cheshunt, contributed a handsome collection of plants, comprising a large number of Primulas, *Doronicum plataginaceum excelsum*, an excellent variety; Daffodils, and several hardy plants comprising several *Gentians*, Tulips, and several *Berberises*, amongst them being a hybrid from *B. Aquifolia* and *fascicularis*, "selected for some years for its early flowering habit and fine trusses of flowers." It has bright yellow flowers and leaves like *B. Aquifolia*. A group of varied brilliant Hippeastrums completed the collection, for which a silver Banksian medal was awarded. Mr. W. Roupell, Harvey Lodge, S.W., sent a plant of an Auricula to show the reversion from the show type to the earlier forms. Mr. W. Rumsey, Waltham Cross, showed a box of pale and bright Rose blooms (vote of thanks). He also had a group of Roses in pots well flowered (silver medal).

Messrs. Rothschild, Gunnersbury House, Acton (gardener, Mr. F. Hudson), sent flower sprays of *Hahrothamnus scaber* (Newelli) with trusses of light red flowers, and flower stems of *Maranta Warscewiczii* and flowers of *Magnolia conspicua*. The Rev. W. Wilks, Shirley Vicarage, Croydon, sent sprays of *Cytisus purpureus* (C. Adami), obtained from grafting the purple on the common *Laburnum*. Mr. F. Wilkins, The Grange Gardens, Kingston Hill, showed a basket of fine Primroses (vote of thanks).

Messrs. Barr & Son, King Street, Covent Garden, showed a large collection of Narcissi and hardy flowers. Mr. R. Dean, Ealing, exhibited several Primroses of distinct colours. From Mr. J. Walker, Ham Common, Surrey, came a grand group of Daffodils in many varieties and admirably staged (silver medal).

ORCHID COMMITTEE.—Present: Dr. M. T. Masters in the chair, and Messrs. D. B. Crawshaw, H. M. Pollett, H. Ballantine, C. Pilcher, J. Dominy, E. Hill, Lewis Castle, Sidney Courtauld, J. Douglas, A. H. Smee, James O'Brien, T. B. Haywood, and Baron Schröder.

F. G. Tautz, Esq., Hammersmith (gardener, Mr. Cowley), exhibited a small group of Orchids in flower, *Cypripedium selligerum majus* with four fine flowers being very notable. Mrs. Brightwin, The Grove, Stanmore (gardener, Mr. J. W. Odell), sent a plant of a small flowered, pale mauve, or white *Disa*, named *sagittalis*. It is said to last eight weeks in flower. F. Wigan, Esq., Clare Lawn, East Sheen (gardener, Mr. W. H. Young), showed a group of Orchids comprising several *Cypripediums* and *Cattleyas*, *C. Trianae Schoderæ*, with soft purplish mauve flowers, being the most remarkable, and it had twelve flowers on four spikes. *Aeranthus Leonis*, well flowered, was awarded a cultural commendation.

Mr. P. Blair, Trentham Gardens, Stoke-on-Trent, contributed a collection of choice Orchids, *Dendrohium nobile nobilissimum*, *D. chryso-discus*, *D. nobile Cooksoni*, *Odontoglossum flaveolens*, and the Trentham variety of *Odontoglossum Ruckerianum*, with deeply spotted flowers, were conspicuous (bronze medal). The Rev. H. Handley, 19, Royal Crescent, Bath (gardener, Mr. S. Veersteke), exhibited a plant of *Angraecum sesquipedale* with seven large flowers, a large-flowered variety of *Odontoglossum crispum* and *O. maculatum*. E. Ellis, Esq., Manor House, Wallington (gardener, Mr. T. A. Glover), sent a plant of *Aerides suavissimum*, with four spikes of flowers, pale pink sepals and petals, and large fleshy yellowish lips (cultural commendation). Messrs. J. Laing & Sons, Forest Hill, showed a small plant of *Cypripedium niveum*, with a white flower dotted with purple, like *C. Godefroyæ*.

Messrs. J. Veitch & Sons, Chelsea, sent a plant of *Dendrohium atro-violaceum*, a native of New Guinea, with leafless slender furrowed pseudo-hulbs, and creamy coloured sepals and petals densely spotted with deep purple. The lip is green, closely and heavily striped with dark purple. They were borne in a short raceme of six flowers at the apex of the pseudo-hulb.

CERTIFICATED PLANTS.

Hippeastrum Grand Monarch (James Veitch & Sons).—A magnificent variety, the flowers of excellent form, and the colour an intensely rich dark scarlet to the centre.

Primrose Oakwood Blue (G. F. Wilson, Esq.).—A seedling from Scott Wilson, which has been flowering in the open border since the end of January, and was lifted the previous day for exhibition. The flowers are 1½ inch across, deep blue, with a yellow centre; one of the finest of the blue Primroses yet obtained.

Polyanthus Terra Cotta (Mr. R. Dean).—A distinct variety of Primrose, the flowers of a peculiar shade well expressed by the name.

Pyxidantha barbatula (Messrs. Paul & Son).—A dwarf tufted plant like one of the small Saxifrages, with minute white starry flowers scattered over the plant at the points of the growth.

THE LECTURE.

At 3 P.M. a general meeting of the Society was held in the Drill Hall, D. Morris, Esq., in the chair, and there was a remarkably good attendance of Fellows and visitors. Several new Fellows having been duly proposed and elected, the Chairman introduced Mr. W. Ingram of Belvoir Castle Gardens, as a well-known authority on the subject which he had undertaken to discourse upon, namely, "Spring Flower Gardening." The lecturer then proceeded to deal with his subject in a thoroughly practical and interesting manner. He divided spring flowering plants into two groups—those that flower in early spring, viz., from February through March; and late spring, from March through April to May. The latter included the great bulk of plants which gave attraction to the flower garden at that period of the year. The names, characters and requirements of the chief species were enumerated, and much special information derived from a long experience was conveyed to the audience. The Rock Garden was next described, the best mode of construction, arrangement and planting, a free, natural style being advocated in opposition to the formal designs too frequently seen. The shrubs adapted for shelter as well as for adornment of the rockery were also referred to at some length, and Mr. Ingram concluded his able lecture amidst hearty applause. These afternoon lectures are evidently much appreciated, though the hall itself is not well adapted for the purpose.

DAFFODIL EXHIBITION AND CONFERENCE.

PARTICULARS of the Exhibition of Daffodils to be held at Chiswick, April 15th to 18th next, are issued in a schedule and programme, of which the following is the substance:—

Schedule.—For the better examination and comparison of the flowers it is particularly requested that exhibitors will divide their collections into the following classes:—Classes 1, *Corbularia*; 2, *Ajax* (yellows only); 3, *Ajax* (bicolors only); 4, *Ajax* (white or pale sulphur—*e.g.*, *albicans*, *cernuus*, *moschatus*, *pallidus præcox*, *tortuosus*, &c.); 5, *Incomparabilis*, *Barri*, and *Leedsii*; 6, *Humei*, *Backhousei*, *Nelsoni*, *montanus*, *Macleai*, *Sabini*, *Bernardi*, and *tridymus*; 7, *Triandrus*; 8, *Burbidgei*, *poeticus*, *odorus*, *juncifolius*, and *Jonquilla*; 9, *Gracilis*, *intermedius*, *polyanthus*, and *double polyanthus*; 10, *Double* and *semi-double* Daffodils of all kinds—*e.g.*, *Ajax*, *incomparabilis*, *odorus*, *poeticus*, *Jonquilla*, &c., except *polyanthus*; 11, *New* or *unnamed* seedlings of the *Ajax* classes; 12, *New* or *unnamed* seedlings of any other class than *Ajax*. No *doubles* or *semi-doubles* may be shown in classes 1 to 8 inclusive. The flowers may be shown set up in bunches or separate, according to the fancy of the exhibitor, and with or without foliage. No limit is placed on the number of flowers of a sort, but it is most desirable that, however many of a sort be shown by any one exhibitor, that they should be all staged side by side. Thus, if a dozen bunches of *Empress* be shown by one exhibitor, they should all stand together, and not be mingled about indiscriminately with *Horsfieldi*, *grandis*, &c., and so on. In the case of any new or little known forms the exhibitor is requested to state, in writing attached to the flowers, the points in and for which he considers them superior to or more desirable than older or more generally known forms.

Prizes.—In addition to any awards which the Council of the Society may themselves see fit to make at the time to any exhibitors in the foregoing classes, the following prizes have been placed at their disposal:—

Open to amateurs only.—Classes 13, A silver challenge cup, presented to the Society by the Rev. W. Wilks, Sec. R.H.S., for the best collection of Daffodils, grown by exhibitor in the open (*Polyanthus* excluded); not more than five blooms of a sort. If won by the same exhibitor two years in succession to become the property of the winner. 14, A large silver medal, presented by Messrs. Barr & Son, for the best and most distinct fifty varieties of Daffodils, three varieties of each, to include representatives from the *Trumpet*, *incomparabilis*, *Barri*, *Leedsii*, *Backhousei*, *Nelsoni*, *Burbidgei*, *poeticus*, &c., sections. No *Polyanthus Narcissi*. 15, A small silver medal, presented by Messrs. Barr & Son, for the best and most distinct twenty-five varieties of Daffodils, three flowers of each. The three great groups, *Magni-coronata*, *Medii-coronata*, and *Parvi-coronata* must be represented. No *Polyanthus Narcissi*.

Open to all Comers.—16, A large silver medal, presented by Messrs. Barr & Son, for the largest, finest, most varied, and distinct collection of Daffodils irrespective of the number of flowers. No *Polyanthus Narcissi*.

Arrangements for the Conference.—Tuesday, April 15th.—The Judges and Committees of Selection will be engaged in examining the flowers and drawing up their reports. Fellows will be admitted to the gardens at 1 P.M., and the public at 2 P.M. Her Royal Highness the Princess Mary, Duchess of Teck, has kindly consented to open the Exhibition at 3 P.M.

Wednesday, April 16th.—Admission to the Gardens at eleven. The

Conference will be opened at two o'clock by Professor Michael Foster, Sec. R.S., President of the Conference, who will deliver an opening address. Mr. C. R. Scrase-Dickins, Secretary of Narcissus Committee of the R.H.S., will give a short *résumé* of the work done by the Committee since its appointment in 1886, and will present the report of the Committee as to the exhibits and the awards of the Judges. The following papers will then be read, and discussion invited:—"Historical Account of Cultivated Narcissi," by Mr. F. W. Burbidge, M.A., F.L.S. Mr. T. A. Dorrien-Smith has been asked to read a paper on "Daffodils in the Scilly Islands." "The Poeticus Group," by the Rev. G. H. Engleheart, M.A.

Thursday, April 17th.—Admission to the gardens at eleven. The Conference will be resumed at 2 P.M., Mr. J. G. Baker, F.R.S., in the chair. Papers to be read:—"On the Natural History and Cultivation of the Trumpet Daffodil and its Hybrids," by the Rev. C. Wolley-Dod, M.A. Herr Krelage has been asked to read a paper on "Polyanthus Narcissi." "On Irish Varieties of Daffodils, with Special Reference to the White Forms," by Mr. John T. Bennett-Pöe; "Notes on Seedlings and Seedling Raising," by the Rev. G. H. Engleheart, M.A.; "Daffodils for the London Market," by Mr. James Walker.

Friday, April 18th.—Admission to the gardens at eleven. The Exhibition will close at 4 P.M.

The following ladies and gentlemen have been requested to act as Judges of the various classes:—Mr. T. A. Dorrien-Smith, Herr Krelage, Mr. James Walker, Mr. Walter Ware, Mr. F. Moore, Miss Jekyll, Rev. C. Wolley-Dod, Rev. G. H. Engleheart, Mr. F. W. Burbidge, Lady Henry Grosvenor, Miss H. M. White, Mr. Bennett-Pöe, Rev. G. P. Haydon, Sir John Llewelyn, Bart., Mr. C. W. Cowan, Mr. H. J. Elwes, Heer S. A. de Graaff, Mr. J. G. Baker, Mr. W. Alfred Dickson, &c.

Intending exhibitors are requested to communicate with Mr. Barron, Superintendent, R.H.S. Gardens, Chiswick, on or before Friday, April 11th, stating the classes in which they propose exhibiting, and giving an approximate idea of the amount of space they will require. Any other flowers exhibited during this Conference must be kept quite separate from the Daffodils.

CULTIVATION AND SELECTION OF POPULAR ORCHIDS.

BY MR. ALEXANDER WRIGHT.

[Prize Essay, Chiswick Gardeners' Mutual Improvement Association.]

(Concluded from page 285.)

POTTING.—The material used for potting purposes is in itself so simple that it loses much of the mysterious properties attached to various compounds often recommended for potting different stove and greenhouse plants. For the epiphytal Orchids, good fibry peat, sphagnum moss, that grown under trees to be used in preference to that found growing in water; the former being shorter in its growth, and more compact, a neater finish can be given to the plants when potted, and I find that it grows better and lasts longer than that found growing in water. Charcoal may be used with advantage, but if not readily obtained broken pots may be used instead. In crocking the pots keep the potsherds on edge, rather than lay them flat, as it will allow a stick to get a firmer hold in using one to tie the plant or flower spike to. In using the peat knock all the dust out of it on the bench before using, using only the rough pieces, with about equal parts of sphagnum, with the addition of a few pieces of charcoal or potsherds, which help to keep the material open. Finish the pots neatly by using the compact growing pieces of sphagnum, placing them so that they will grow on the surface.

In potting *Odontoglossums*, I do not recommend the plan of keeping the plants raised above the top of the pot as is often seen. If the base of pseudo-bulbs is just elevated above the edge of the pot, that will be sufficient. Nor should the pot be filled to the rim with the potting material, rather allow about half an inch, so that should the plant get dry at any time it can be watered with the watering can, and without having recourse to dipping, a plan that requires much time to carry it out.

There are plants on the other hand that are better raised, such as those that emit roots freely, and prefer to grow out of the material rather than in it. Examples of this kind will be found amongst the *Oncidiums*, *Vandas*, *Aerides*, &c. The *Cypripediums* are often raised unnecessarily high in their pots. In potting them there ought to be room left for watering. Most of the *Cypripediums* will be benefited by the addition of a few small pieces of turfy loam to the peat and sphagnum in potting, and for some of them, such as *niveum*, *concolor*, &c., the addition of small pieces of limestone will make a great difference to the well-being of the plants.

The terrestrial Orchids will require more substantial material to grow in. *Calanthe Veitchii*, *Phajus grandifolius*, *Peristeria clata*, *Anguloas*, &c., can best be grown with good loam, manure, and leaf soil, to which some bonemeal may be added. Nor will the plants be required to be raised in the pots, like the epiphytal group, but enough room

should be left for watering. *Ceologyne cristata* and *Lycaste Skinneri* are improved in their growth by leaf soil being added to the peat and sphagnum, and the *Pleiones* are the better for leaf soil and bone-meal.

Let me here strongly recommend that all Orchids should be repotted every year at least, and all decaying material, or any not having roots in it removed, and replaced with fresh material. This will be found to keep the plants in better health than where the system of top-dressing is resorted to and the plants allowed to go on for perhaps two or three years without being potted. The consequence of such treatment is that when the plants are turned out of their pots, the roots are found in a very bad state. The plants thus receive a check from which recovery is often a slow business.

There are a few plants that may be allowed to go for two or three years without repotting, and they are those the roots of which adhere firmly to the sides of the pots or baskets, rather than to the material in which they are potted. With all the terrestrial and with most of the epiphytal Orchids, this year overhauling will be found to do them good. The system of top-dressing should be guarded against, and never carried to excess, as is often done.

The best time for potting the different species and varieties is a most essential point in the successful culture of Orchids, and for which no "hard and fast" rules can be laid down, but it may be taken as a general rule that the best time is when the plants are starting into growth.

MANURES.—The question of applying artificial manures to Orchids is often raised. Some good growers recommend it, others equally experienced condemn it. But I think there are but few growers but will admit that some of the species are greatly benefited by the judicious use of manures, such as the application of bones, in the form of bone meal, for many of the terrestrial Orchids. One large grower I know speaks very highly of horse droppings, such as would be prepared for a Mushroom bed, being added to the potting material for *Lycastes*, and watering *Odontoglossums* with weak manure water, made by steeping the droppings in water some time before using. He says the different appearance of the foliage after the use of the manure water is marvellous, and he is gradually giving such treatment to the whole of his *Odontoglossums*. I do not recommend any radical change in the culture of Orchids where the plants are doing well, but experiments carefully carried out often lead to a more successful mode of treatment. Do not for a moment let us suppose that we have yet reached the limit of successful culture in Orchids, great as has been the stride made in that direction during the last few years.

WATERING.—When to water and when to withhold water is another most important question. As a general rule plants require most water during their growing period, but even then great care must be taken not to overwater. The sphagnum growing on the surface of the pots will help as a guide to watering. To keep the sphagnum green and growing on all plants during their growing season, and on cool Orchids all the year round, will be the aim of most Orchid growers. Allowing to become partially dry before watering will in most cases ensure enough water to the plants. The plants under this treatment will produce good growths and flower spikes in abundance. Guard against keeping the sphagnum always soaked so as to rot it; the growth made under such conditions is not the kind to flower freely.

SYRINGING will be necessary during hot, dry weather; it helps the plants as well as keeps down insect pests. As *Dendrobiums*, *Cattleyas*, &c., mature their growths, remove them to a cooler house where they can be more fully exposed to the light. But where this cannot be done, move them to the cool end of the house, and keep the syringe from them. I am no advocate of the dry system that is still too common amongst Orchid growers, of keeping many of their plants quite dry after having matured their growths.

After syringing during the afternoon shut the house up close for about an hour afterwards. This greatly helps the plants, and is a system I follow with good results. Watering during the winter months is best carried out in the morning, and during the summer it will be necessary to look over the plants twice a day. Although I mention those times as being generally the most convenient, never let a plant suffer by want of water, however often and at whatever time it may require it. The true plant lover (and he is generally the successful plant grower) watches over his plants with care and attention, knowing the watchful eye to be essential to success. No other person can see so much beauty in a plant or flower as the painstaking and watchful cultivator who has followed the plant through all the various stages of its growth—it may be from the small seed. And is it to be wondered at if he sees beauty where others fail to see anything? This, I think, accounts

for gardeners often estimating their own products as superior to others, for they believe them to be so, and the conviction is the result of the intense interest that careful cultivation encourages.

SHADING.—It will be necessary to protect the plants from bright sunshine, and for that purpose there is nothing better than roller blinds. The material known as hexagon netting is very suitable, admitting plenty of light, yet breaking up the sun's rays, so that no burning or scalding of the plants takes place under it. The advantage of a roller blind over permanent shading is considerable, and the latter should never be adopted where the roller blinds can be had. In dull weather the blinds should not be used, and in fine weather they ought to be rolled up early in the afternoon to allow as much light as possible to reach the plants without causing scorching. With plenty of light the plants make sturdy well-ripened growths, one of the necessary conditions to ensure free flowering. During the autumn and winter months it will not be necessary to use the shading, as all the light we obtain then will be beneficial to the plants.

INSECTS.—Cleanliness is next to godliness; and as regards plants—whether it be Orchids or any other plant—cleanliness is of the first importance. The greatest of Orchid pests, and the most difficult to eradicate, is yellow thrips. For the destruction of this insect there is nothing better I know of than dipping the plants in tobacco water, to which some softsoap has been added. After dipping lay the plants on their side to drain, afterwards syringe with clean water, and where they are troublesome repeat the operation at intervals of about a fortnight until they are got rid of. For scale there is nothing better than sponging the plants carefully with soap water, or some of the many insecticides recommended for this purpose. For green fly we have found the carbon vapour cones very effectual. It is well known that tobacco smoke causes the leaves of the *Odontoglossums* to turn yellow and drop, so that where they are grown it is better not to use it as an insecticide. If the plants are looked over periodically and cleansed insects on Orchids are never troublesome, and, as I have already said, the plants as well as the houses ought to be kept scrupulously clean at all times.

DISEASES.—What is known as "spot" will be found one of the most troublesome to keep clear of. There seems to be great difference of opinion as to the cause of it. I am inclined to attribute it to cold, the plants receiving a chill at some time or other. One thing is certain, if any of the hot section should be kept too long in the cool house spot very soon appears on the plants, and is a sure sign the plant is suffering from cold.

SEEDLING ORCHIDS.—The raising of seedlings of any plant is interesting work, but with Orchids it is more so than with most plants. Some of the causes for this may be that the so-called species as laid down by hotanists do not appear very definite, often we cannot tell where one species leaves off and another begins, so that we may safely conclude there is a wide field open to the hybridist. As a general rule, we find that few species of other flowering plants will cross with one another, but with Orchids I do not think this difficulty exists to near the same extent. My experiments in this direction have not extended over many years yet, but the results so far are encouraging. I have found that not only species will cross with one another, and that even genera do not stop the pleasure to be derived from this interesting work. From the experiments I have already carried out I am inclined to think that most of the Orchids will cross with one another, as we find suitable seed-bearing plants. I am further strengthened in this belief by the construction of Orchid flowers resembling one another to a greater extent than is to be found amongst other flowering plants. If we take two of the widest apart genera, amongst other Orchids say *Cypripedium* and *Odontoglossum*, we find that cross-fertilisation will be a difficult matter, but, I think, will yet be accomplished. I have often tried to get a cross between the two, but until this season I have never noticed that the pollen mass of the one has had any effect on the other; but this season I have succeeded this far, that the pollen from *Cypripedium* has affected the stigma of *Odontoglossum*, so as to close on the pollen and cause the ovary to swell. In the *Cypripediums* the pollen is broken up into single grains, while in *Odontoglossum* the pollen is in a mass and not granular. This would make a cross between the two genera the more remarkable. I am aware that the swelling of the ovary does sometimes take place without any seed being developed, but on the other hand the affinity between the two genera must be very close for the pollen of one to take any effect on the stigma of the other, for I take it there must be some effect before the ovary begins to swell, beginning when the stigmatic disc closes on the pollen masses.

That is one of the interesting parts connected with crossing Orchids; another is the raising of the seedlings and the careful watching they

require through the number of years until they flower. Then the real interest is at its maximum, and we reap the fruits of our labour. Let me recommend all who have a few Orchids to try what can be done in hybridising, although it may take a long while to see the result of our experiments. Remember "time is always on the wing," and that they are "growing while we are sleeping."

The cultivation of the hot section differs but little from the cool section, and where they can be cultivated as well as the cool section, it adds considerably to the richness of the collection, both in colour and variation in the flowers. To see the plants in perfection when in flower, they ought to be removed to a house that can be kept drier, which enables the flowers to last longer in perfection, and if arranged with light elegant Palms and Ferns, their beauty is considerably enhanced and their diversity of colour and form may be admired at leisure.



CHRYSANTHEMUMS—NEW VARIETIES.

[Read at Sheffield by Mr. W. Housley.]

THIS subject to most amateurs is a perplexing one. When I say perplexing I do not mean that it is so exactly in the cultivation of the plants, but in the selection of varieties that will be the most likely to give him satisfaction, either as show flowers, fit for the best row on his board at an exhibition, or as decorative plants bearing a number of fairly good blooms.

I seldom procure new varieties the first season they are offered for commerce, for this reason—nearly all such varieties are limited in numbers, and consequently in cuttings, and therefore are placed in heat to force them to produce a good supply for the market. This is the cause of weak, elongated cuttings, which will certainly not produce exhibition blooms or anything approaching them.

Take for instance Mrs. Alpheus Hardy, which, according to the flattering accounts given in the horticultural papers, was the best Japanese variety which had made its *débüt* for some time. This variety was largely sought for, and the result, at least in the north, has not been very satisfactory, as only a few very medium blooms have been seen. The cost of this variety, which was of American origin, amounted to something like £300, and I think will most likely turn out disappointing to English growers. The hair-like growths (which is stated to be its great feature) on the surface of the petals is by no means new. Mr. Tunnington of Liverpool, one of the most experienced growers in England, assures me he has had the same thing occur with such varieties as Chang, Hero of Stoke Newington, and Princess Teck, under good cultivation, although perhaps not so much so as in this variety.

I believe never before in the history of Chrysanthemum culture were new varieties so numerous or so eulogistically described as in the present season. Years ago we complained of the French raisers each season sending us such a large number, all with very high-flown descriptions, but very very few of which turned out equal to existing varieties; but now cousin Jonathan, who is nothing if he does not "lick creation," has apparently taken his cue from the French, and is endeavouring to out-Herod Herod. Every catalogue teems with new American varieties, the descriptions of which are enough to drive a 'mum enthusiast crazy, especially if his pocket is not too well lined. Mr. Owen catalogues no fewer than sixty new American varieties for 1890, and almost as many for 1889. Messrs. Cannell, Davis, Laing, Boyce, and Morton have long lists, differing in many varieties. Mr. Holmes has another list entirely to himself, which he calls the "Messina collection," being a collection sent over to a New York Lady by a young Japanese gentleman, and out of which came Mrs. A. Hardy, of which I have previously spoken. This collection comprises eleven varieties—Bella Hickey, Emma Rieker, Kioto, Kabayama, Lillian B. Bird, Medusa, Mrs. Fottler, Messina, W. H. Lincoln, Nippon, and Mrs. A. Hardy. The best of these I think will be Kioto, Mrs. Fottler, and Mr. W. H. Lincoln; they are certainly the most likely candidates for public favour. The demand for Mrs. A. Hardy this year is, I believe, very small, and is attributable to one of two causes. First, the American firm who introduced it appear to have then scoured the country in search of buyers, and thus distributed it very extensively; and secondly, there appears to be an almost unanimous opinion amongst exhibitors, and those who have either themselves flowered it or seen it flowered, that it will not make a successful exhibition variety.

I am not favourably impressed with the American descriptions of a flower, as they either do not know what the English standard of a good bloom is, or they are exaggerated. One of the largest of northern growers grew eighteen of the newest American varieties last year, all with a glowing description, but only to meet with the keenest disappointment, and to consign sixteen to the rubbish heap. Of those new varieties which have upheld their reputation and which have produced

first class blooms, Sunflower is a splendid grower. The same can be said of Etoile de Lyon, although a little coarser than that previously named. Florence Percy, a good bloom, though small if produced from the crown bud, is a fine flower. The same may be said of Gladiator, Marsa, Mad. Louise Leroy, Condor, with very broad florets, George Daniels, a light pink, remarkable for its width of petal. Mad. A. Carnegie, scarlet crimson, is sure to come to the front, as is also W. W. Coles, a bright red. These two last named are sure to take a foremost place.

I may safely say that the most favourite Japanese of the year will be W. W. Coles. It is now greatly in demand, and there is likely to be some difficulty in obtaining it, as I understand all the leading raisers have considerably more orders on their books than they have plants to meet them with. This variety was exceedingly well flowered by Mr. Pearson at the Chilwell Nurseries, and he has a high opinion of it. Next in order comes Volunteer (syn. Mrs. Irving Clarke) and Beauty of Castlewood. The last named is very scarce; the first named is a fair bloomer, and will no doubt become a great favourite and useful variety; its build and style (that of Belle Paule) is of a most pleasing and effective character. L. Canning will also become a very popular variety, for its close compact habit of growth, in which respect I think it surpasses Avalanche; it is a pure white and said to be a deep, well built flower if well grown.

A few new varieties, which have been discarded by a well known northern grower, are Moonlight, Mr. and Mrs. H. Cannell, Ceres and Pelican, none of which will prove satisfactory so far north as Sheffield unless we have a most exceptionally fine hot summer. These require more heat to properly develop and open the flowers successfully than any others, although at the same time most Japs delight in a gentle heat, and expand more freely if so treated.

Of the new incurred varieties only two call for any special comment—viz., Mr. T. Coleman, sent out by Mr. Owen of Maidenhead, and John Lambert, raised by Mr. J. Lambert of Shrewsbury. The first named is a sport from Princess of Wales, and has received six first class certificates. It resembles its parent in every respect except colour, the lower part of the flower being a bright golden bronze, shaded rose, the upper portion often bright yellow, inside the petals of a pale yellow. This is one of the most valuable acquisitions ever obtained, and should certainly become a favourite.

John Lambert is a magnificent flower both in build and solidity. It is a sport from Lord Alcester, but superior in form. It was also exhibited at Sheffield, and, although not obtaining a certificate, was not the less deserving of one. The fact that the flowers had been shown at a previous exhibition had certainly somewhat militated against what must have been an exceptionally good trio of blooms when cut from the plants.

Mr. Molyneux has rather decried this variety in some of the horticultural journals, giving it as his decided opinion that it will not be found equally valuable as an exhibition variety with the two new ones sent out last year—viz., Violet Tomlin and Miss Haggas; but even Mr. Molyneux is not infallible, and I think too much stress should not be laid on his opinions on this point. John Lambert sported with the raiser (Mr. Lambert) of Shrewsbury in 1886 or 1887, since which time it has continually been shown by Mr. Lambert on his incurved stands, and has no doubt contributed largely to his success. No Golden Queen of England or Emily Dale can approach it for build or colour, and it is a much stronger grower than its parent.

Ada Spalding, one of the new American varieties, has been grown by Mr. Owen, who has successfully flowered it, and who takes it to be an excellent variety. It is a splendid grower, making large, stout, fine looking foliage, and as flowered last autumn was quite satisfactory in every respect, and should be seen in a conspicuous position on most winning boards this coming autumn. John Doughty, a sport from Queen of England, colour a rosy fawn, a decided improvement on the Bronze Queen, is also good. Violet Tomlin, a bright violet purple, a tall grower, good foliage, and a good solid flower, is one of the newest and best as a show variety. Miss Haggas, a bright soft yellow, is also a tall grower, and is equally good with the last named. They are, however, both rather taller than the majority of amateurs can conveniently house.

Of new Anemone flowered varieties which will no doubt become acquisitions may be named Mrs. Judge Benedict, Mrs. Chas. Pratt, Mr. E. C. Jukes, and Gladys Spaulding. Of the early or summer flowering varieties Golden Shah, an English raised seedling, is likely to become popular, from its dwarf compact habit, good foliage, bright yellow flowers, and earliness.

HARDY FLOWERS AT KEW.

ALL lovers of hardy flowers will find themselves amply repaid for a visit to Kew at the present time. The gardens always present something interesting to the visitor, and just now the chief attractions are the wealth of spring flowers which everywhere meet the eye.

The method adopted of planting these on the grass is a great success. The wild garden on the mound near the Cumberland Gate is worth a journey to see, the thousands of Narcissi having a most imposing effect, while the Hyacinths present quite a blaze of colour which is softened down by their carpet of green. In no position does the Hyacinth display itself to so much advantage as when planted on the grass, as here it loses the stiffness and formality which characterise it in beds and borders. All bulbs which are of no further use for pot culture

might be utilised for this purpose, and the result would prove most satisfactory.

The rock garden, though not yet at its best, contains many gems, which make it well worthy of more than a passing glance. Some of the most noteworthy of these are *Saxifragas* (*Megasea*) *speciosa* and *Stracheyi*, *Erica carnea*, *Scillas*, *Muscaris*, *Erythroniums* and *Chionodoxas*. A small patch of the beautiful blue *Anemone blanda* nestling at the foot of a large boulder is particularly pretty, while a tuft of the yellow *Draba aizoon*, perched on a huge piece of rock, looks quite at home and is flowering profusely. The lovely *Narcissus cyclamineus*, with small yellow flowers, is also particularly fine.

The alpine house presents a gay display, and shows what can be done with even the commonest spring flowers when properly treated. This house is unheated, and with the exception of a few *Primula obconica* all the plants have been grown in cold frames, yet we unhesitatingly say that no house in the gardens—Orchid houses not excepted—can approach it in its wealth of beautiful flowers, which are not the less attractive and interesting because many of them are comparatively common and easily grown. Many amateurs have a difficulty in keeping their greenhouses gay during the early spring months, being unable from motives of economy to provide sufficient fire heat to keep ordinary greenhouse plants through the winter. To all such we would recommend a visit to the alpine house at Kew, where they will doubtless learn something which will be useful to them. Besides the finer *Narcissi* and *Bulbocodiums* there are *Hepaticas*, *Millas*, *Anemones*, *Sisyrinchiums*, *Corydalis*, *Scillas*, and a host of other fine spring plants. A group of the dwarf snowy white *Primula pubescens alba*, more commonly met with as *P. nivea*, is charming; *Collinsia verna* is also very fine, while *Cyclamens repandum*, *hederifolium*, and *Atkinsi* are flowering freely, and look exceedingly pretty.—R. G. K.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY, EDINBURGH.

THE spring Exhibition was held in the spacious Waverley Market on the 2nd and 3rd of the present month, when a fairly good show of plants and cut flowers was staged on the various tables and on the floor of the building. Fruit and vegetables were shown in very small quantity. Of the former very fine Noble Strawberries secured the first prize for Mr. McIndoe, Hutton Hall, Guisborough, the same exhibitor being first for two bunches of black Grapes, Mr. Potter, Seacliffe, North Berwick, occupying the same position for collections of dessert and kitchen Apples, both in very fresh condition. Of vegetables there were good examples of French Beans, Broccoli, young Potatoes, Leeks, saladings, and collections, the latter being hardly so good as they generally are at Edinburgh.

Of plants, very noteworthy were the beautiful examples of *Azaleas* shown by Mr. Paterson, Millbank, who was easily first in the several classes in which he competed. The six stove and greenhouse plants and the Cape Heaths staged by the same exhibitor were also good. Orchids were not numerous, Mr. Grossart, Canaan Lane, alone staging six plants, *Cymbidium Lowianum* being prominent among these. Mr. McIntyre, The Glen, won with three, a fine example of *Cymbidium eburneum* being the best of them; Mr. Cunor being second, and Mr. Patterson third. A *Dendrobium nobile* secured for Mr. McIntyre the first prize for one Orchid. Mr. Napier, Rockville, Murrayfield, secured the first prize for four exotic Ferns and for three *Adiantums*, with fine fresh specimens. Mr. Bennett, Corstorphine, won with four foliage plants, the best examples of three *Dracenas* coming from Mr. Grossart. Some not large but fresh Rose plants were set up by Mr. J. Patterson. The first prize Chinese *Primulas* were large and well flowered; these were from Mr. Bald, Oswald Road. Mr. Rae, Sunlows, Kelso, was first for six *Cinerarias*, with good plants of a fine strain. Lily of the Valley, *Primulas*, Alpine plants, *Mignonette*, and some other classes were rather deficient in quality. *Hyacinths* were also rather weak, though some good spikes were noteworthy in some of the collections. Mr. D. McBean, Johnstone, secured the first place respectively for twelve and for eight plants, with generally good and massive spikes. Mr. Brydon, Tweedbank, Innerleithen, in the class for amateurs (not gardeners), had also good examples, with which he easily carried off the first prize. The other bulbous plants call for no special comment. The table of plants arranged for effect brought out only one exhibitor, Mr. Grossart, and to him the first prize was awarded. In the open class for a table of hardy flowers Messrs. Munro & Ferguson were first, being the only exhibitors. In the cut flower classes were some good Roses, Mr. N. R. Henderson, Clermiston, being first for twenty-four blooms in eight varieties. The best twelve blooms of *Gloire de Dijon* came from Mr. Chalmers, Davidson Mains; and the best twelve of *Maréchal Niel* from Mr. T. Fender, Crieff. Mr. McIntyre, The Glen, was first respectively for twelve blooms of stove and greenhouse plants and for twelve Orchids.

In the section confined to nurserymen the chief interest centred in two groups of plants arranged on the floor of the building. The one was oval-shaped in outline, the chief features being some good *Azaleas*, not too profusely covered with flowers, and some good Palms standing boldly out from the small Ferns and other plants, which were freely used to hide the pots. This group was from Messrs. R. B. Laird and Sons, West Coates, and to it the first prize was awarded. The other had the oval broken by a bulge in the centre of the two longer sides, a feature which had no beneficial effect. Palms, *Lilium Harrisii*, *Dracenas*, *Ocotons*, and various fine foliage plants were skilfully

arranged, though perhaps in too great numbers, the undergrowth being much of the same character as in that above described. Messrs. Ireland and Thomson, Craighleith, contributed this group, and secured the second prize. The same exhibitors were the sole exhibitors in various other classes.

Among the miscellaneous exhibits not for competition, great attention was attracted to a group of *Primula Sieboldi* from Messrs. Ryder and Son, Sale. These were set up among Maidenhair Ferns in very neat form. Messrs. Barr & Son, Covent Garden, had a small collection of cut Daffodils which were of much interest as containing some of the newer good forms, such as Mrs. Gammel, Countess of Annesley, &c. Messrs. T. Methven & Sons, Princess Street, set up a group of ordinary decorative plants, one of the prettiest in the hall. The weather was remarkably fine on both days, too fine, indeed, for the benefit of the Society, if one might judge from the attendance at various times, which was very small, the genial atmosphere out of doors being apparently more attractive than the glow of beauty within.



HARDY FRUIT GARDEN.

FIGS.—Those who neglected to protect these in any way will perhaps regret not having attended to this important matter. The very severe frosts experienced during the early part of March appear to have completely killed the embryo fruit at the points of all unprotected shoots, and it is doubtful if even those lightly protected were proof against such a low temperature as 20° below freezing point. They would have withstood an equally severe frost earlier in the winter, but Figs, in common with all other hardy fruits, were moving much earlier than usual. In all probability there will be a scarcity of those luscious fruits next August and September.

PRUNING FIGS.—All mats, Fir branches, or other protecting material of a heavy nature ought now to be cleared from the trees, but it is advisable to delay what pruning may be considered necessary till such times as it will be seen which branches or shoots are fruitful or not, this being the most likely method of securing a fairly good crop. Late pruning is always perfectly safe, Figs apparently possessing any amount of vital power. Trees with their branches growing unrestricted from the walls, these frequently being the most productive, ought merely to be lightly thinned out, all suckers or gross shoots springing from the base of the trees being also removed. Those kept neatly trained to walls to have some of the longest and most naked branches cut well back to the main stems; this gives the more serviceable wood more space, and also causes the formation of younger shoots nearer the base of the tree, or where they are most needed. It is almost needless to point out that the fruits are borne at the points of well matured young shoots, and the latter ought not therefore to be shortened, but must be laid in to their full length. No notice should be taken of the destruction by frost of partially developed fruit, as these never swell and ripen. At present this season's crop, or what should have been such, is in a bud state, but they will develop rapidly and in advance of the foliage. Be very sparing of the knife in the case of vigorous young trees, as the more these are pruned back the more luxuriant, and therefore unfruitful, they become.

PLANTING FIGS.—In most cases nurserymen keep their stock of young trees in pots, and they can consequently be ordered and planted any time during April or May, the former month from choice. The most generally productive varieties are the Brown Turkey, White Marseilles, and Brown Ischia, the first named being the most commonly grown. The Brunswick is quite as hardy as either of the foregoing, and the fruits are very large and good in quality, but as a rule are very thinly produced. A strong sappy growth being neither hardy nor fruitful, it behoves those who are anxious to grow Figs well to plant them in a very sunny position, and in rather poor soil. The best places inside garden walls are the corners formed by the junction of a wall facing south and another facing to the west, than which no hotter position can be found. Figs also succeed admirably against high south walls, the sunny ends of living houses, stables, and outbuildings. On the south coast they do well as standards, and are particularly "at home" against the chalky or other cliffs to be found on the Kentish and other adjoining coasts. Substitute rough drainage for any clayey subsoil there may be in the spots chosen, and plant principally in rather poor fresh loam, to which chalk or mortar rubbish has been most freely added. Make this nearly as hard as the road, and there will then be less likelihood of rank top growth resulting. A roadway or gravel path near to a vigorous Fig tree soon corrects a non-fruitful habit.

FORMING NEW STRAWBERRY BEDS.—The present time is well suited to the formation of fresh Strawberry plantations, especially in cases where they were not established early enough in August to do any good. If kept from fruiting, for the smallest plants will attempt it, all will grow to a large size during the summer, and yield extra fine

early crops of fruit. In the southern districts it is sometimes advisable to delay planting on warm borders till the early Potatoes are cleared off, but in the open quarters the Strawberries being planted now, the spaces between the rows can be cropped with either spring or autumn sown Onions, Lettuces, Spinach, Turnips, or other crops that will not unduly shade them. All delight in well-manured deeply dug ground, but this must be made quite firm, otherwise there will be a plentiful crop of leaves and little or no fruit. The rows of the stronger growers, of which Sir J. Paxton is a good type, ought on all good soils to be not less than 30 inches apart, a space of 18 inches dividing them in the rows. The rows of the less robust varieties, including British Queen and the compact Laxton's Noble, may be 2 feet apart.

TREATMENT OF ESTABLISHED STRAWBERRY BEDS.—These ought not to have the ground between the rows either dug or forked over now, as this destroys many surface roots, also loosens the soil more than is good for the plants. What is needed is sturdy foliage and strong trusses of flowers thrown well above it. They must not, on the other hand, be unduly starved, or the fruit will be small and of inferior flavour. A surfacing of soot, guano, or any other nitrogenous special manure may well be given now or just prior to showery weather. In any case it ought not to be deferred long after the trusses of bloom are showing, and on no account should strong manures touch the foliage or reach the hearts of the plants, or much harm will be done. The principal feeding roots are spread out well clear of the foliage, and long established plants ought especially to have the whole of the spaces between them manured in some way. This to be lightly stirred in and weeds and slugs destroyed by the use of a flat hoe. Nor ought mulching with strawy manure to be long delayed. Applied now, some of its fertilising properties will be washed down to the roots, and in any case it will greatly serve to conserve the moisture in the ground so much needed by Strawberries later on. The market growers make this one good mulching suffice, the rains washing it clean enough for the fruit to rest upon, but private gardeners ought to again lightly mulch with cleaner litter before the crops are far advanced.

FRUIT FORCING.

VINES.—*Early Forced Vines.*—Pot Vines afford creditable crops of early Grapes. Better results, however, are had by planting the Vines in beds or borders. A span or lean-to house answers perfectly, having beds or borders 3 to 4 feet wide, and about 2 feet deep, so as to admit of 6 to 9 inches of drainage, and 15 to 18 inches depth of soil. The Vines being raised from eyes or cut-backs will need to be forwarded in another structure until the Grapes are cut. These being ripe in April will be off by early May. The Vines that have fruited are cleared out, fresh soil is placed in the borders or beds, and the Vines that are to fruit the following year are planted at 27 to 30 inches apart. If they have made considerable progress, but are not root bound, they may be turned out with the ball entire, firming the soil well about them, and supplying water freely. If in small pots they should be disentangled and the roots spread out. Turfy loam with an admixture of about a sixth of old mortar rubbish forms a suitable compost, and a sprinkling of some approved fertiliser. The canes being trained near the glass will make short-jointed wood. Stop the laterals at the first leaf and the sub-laterals at one joint, and to every subsequent joint as made. Almost any amount of vigour can be had by encroaching the laterals, but not allowing them to interfere with the principal. This, however, is not desirable for Vines intended to fruit early, as it is necessary the wood be ripened early, and as much food stored in the wood and buds as practicable. If well done they will make canes like walking sticks, with eyes like nuts, and being as much under control as pot Vines they can be matured early and given a rest, so as to be ready for a start by the early part of November. By this plan the root action is considerably extended, and this admits of any amount of feeding, the crops finishing better than those of pot Vines in pots. Cut-backs are very much the best for planting out in the way described.

Young Vines.—Those planted last spring will now be breaking naturally. When the buds have grown about half an inch a little fire heat will prove beneficial, especially on cold days. Remove all buds except one at each break, retaining the strongest, and crop lightly, but supernumeraries may be weighted with as much fruit as there is prospect of their bringing to maturity.

Grapes Ripening.—After commencing to colour the berries swell considerably. In order to insure a full swelling of the fruit inside borders should have a thorough watering and mulching early on a fine day, ventilating freely to allow excessive moisture to escape. A full crop of early Grapes is a great strain on the energies of the Vines, and through it in early forcing perfection in colour is not always attainable, much may be done by a liberal and constant supply of warm, dry air combined with a moderately low night temperature, but the temperature must be well maintained by day—70° to 75° from fire heat, and 80° to 85° with sun heat. When hard forcing is practised red spider usually makes its appearance, and should be prevented by painting the pipes with a mixture of sulphur and skim milk; care, however, must be taken not to use too much, or it will act injuriously upon the skin of the berries and spoil their appearance. The sulphur vapour is more injurious to the skin of white than black Grapes.

Succession Houses.—Attend to thinning the bunches and berries. Stop and remove laterals, especially where there is not room for extension, as to allow them to grow considerably, so as to necessitate a large reduction of foliage at one time, results in a check which often induces

shanking at a later period. See that the borders have plenty of water, and weakly Vines will be benefited by tepid liquid manure. Vines swelling their fruit should have a moist atmosphere. Damp the paths two or three times a day, and if liquid manure be used at the latest damping it will improve the Vines and act as a check to red spider. An ounce of the ammonia manures to a gallon of water is suitable for damping with.

Late Vines.—Disbud and tie down these as they require it. Close the houses early in the afternoon with sun heat, and maintain plenty of atmospheric moisture by frequently damping available surfaces. They are now making rapid progress and must be given every encouragement.

CUCUMBERS.—Plants that have been bearing through the winter will need to be renovated at the roots, removing with a handfork as much of the exhausted soil as is possible without injury to the fibres, and fill with rich lumpy compost, pressing it down firmly. Stopping, training, and cutting out the old growths must be followed up, and abundant waterings given as necessary. Assist plants in full bearing with copious supplies of tepid liquid manure, and earth the roots occasionally. Damp the floors before 8 A.M. and about 3 P.M., the foliage being syringed lightly on fine afternoons, and keep the evaporation troughs filled with liquid manure or weak guano water. There ought not to be any further delay in having the blinds in readiness, so that they may be employed for an hour or two at mid-day, when the sun is brightest. Shading is most needed after a dull day or a period of dull weather (which tends to make the foliage soft) to prevent flagging. Worms, if troublesome, may be expelled by lime water.

MELONS.—Plants swelling their fruits will require supports. Half-inch deal boards, 6 or 7 inches square, with a hole through each corner, and suspended by four pieces of string or copper wire from the trellis in a slanting direction to prevent water lodging, may be employed for the purpose. Pieces of slate with holes drilled in the corners are preferable to wooden supports, and glass would be still better through not being heated with the sun. Remove all flowers from such plants, also superfluous growths, stopping and tying as necessary. The plants must not suffer through insufficient supplies of water, affording weak liquid manure occasionally. Keep the evaporation troughs charged with liquid manure, and secure a good atmospheric moisture by damping in the morning and early afternoon, syringing the plants lightly about 3 P.M. on bright afternoons. Later plants will be showing fruit, and unless abundant remove the first blossoms, it being important that the female blossoms be nearly of one stage of growth. Maintain a somewhat high temperature and dryer atmosphere during the setting, only affording as much moisture as will prevent flagging. Stop the shoots at one joint beyond the fruit, but employ the knife as little as possible during the setting period.

In pits and frames a good bottom heat must be maintained, observing the conditions previously named during the setting. When the fruits are set they must be raised on a piece of slate. Look out for canker at the collar, placing a little quicklime around the stem as a preventive.

PINES.—Plants started into fruit early in the year are fast approaching the flowering period, and will be benefited by an occasional sprinkling overhead at the time the house is closed, but when in flower they must not be so treated. The foliage being as yet tender, it will be desirable in the case of houses with large panes of glass to afford a slight shading for an hour or two at midday for a few weeks until the foliage becomes inured to the sun's influence. When the flowering is over the fruit will advance rapidly if the roots are in good condition, and plentiful supplies of weak liquid manure will be requisite. Attend to ventilating early in the morning, commencing when the temperature is at 80° and closing at 85° with sun heat. Keep the atmosphere moist when the house is closed, the bottom heat steady at 80° to 90°, the night temperature 70°, and 75° by day artificially. As soon as the suckers appear remove all except one to each plant.

THE BEE-KEEPER.

SEASONABLE NOTES.

PUNIC BEES.

THERE appears to be some misunderstanding regarding what I have said about the hives of these being weak, as I have several inquiries about them on that point. Both of my stocks were simply a handful of bees with their queen last July, having no assistance whatever but feeding, consequently were merely nuclei, and not very strong either when winter set in. Notwithstanding this drawback they are increasing quickly, and work on days and at times when no other bees are abroad, quite confirming what "A Hallamshire Bee-keeper" has said about them; and as the weather is now much warmer, although frosty at night, the bees are gathering as much pollen as they can carry, principally from the Tussilago,

which is very plentiful, and will in a few years be a plague to the husbandman. Honey is also being gathered; the Grey Willows supply it plentifully, and I observe the Punic bees are gathering more in proportion to their strength than other bees are. I hope this will be a sufficient explanation, though I thought the context of my article at page 269 made all clear.

SPREADING BROOD.

Although this subject has been frequently before your readers, one phase of it has not. It will be remembered that when it was first suggested there was not the slightest hint as to caution being exercised. The latest advice I have seen published is as amusing as it is sure to be a failure. Here it is. "As the centre combs are well advanced with brood, and the outside ones will contain eggs and larvæ, lift the centre combs to the outside, and let those outside go to the centre." These may not be the exact words, but are the proper meaning. The idea that the centre combs contain the most advanced brood is absurd. The brood of centre combs have to perform the same evolution as the brood of the outer, and if the beginner will not only think, but examine the combs the queen filled with brood first, about the twenty-eighth day after the bees were hived, or after the bees have commenced breeding briskly, he will find nothing but eggs and grubs in the centre, while the outer combs will contain sealed brood.

FASTENING COMB FOUNDATION.

Having been the first in Great Britain to manufacture comb foundation, following the Germans, I am able to say that there is no plan so effective as the groove, and with genuine wax, properly made sheets, and shallow frames, there is not the slightest necessity for wiring frames. There is no plan for fixing sheets in frames or bars but what I have given a fair trial so far back as twenty-eight years ago. If your readers having the back numbers of the *Cottage Gardener* about 1860, they will find my advice how to fix guide combs by the aid of a heated smooth surface of iron. By the same plan I fastened foundation to bars of supers, and when glass was used strong gum was employed, thereby leaving no mark but the centre rib of foundation on the glass. The Americans are following up this plan, and have brought out an apparatus heated by a lamp to effect the same purpose. If a lamp is to be used the beginner will find it much handier to have it beneath the straight and smooth surfaced metal.

BRACE COMBS.

I have frequently shown how all the extra labour to the bees and excessive propolising about supers may be avoided by using the Stewarton form of crown, with slips or slides of wood, and admitting the bees to the supers from the outer combs only. The Americans, whom our "modern" bee-keepers copy, are troubled about the brace combs and excessive propolising, and devising plans to avoid it. They are in one respect coming to our plans, and one bee-keeper has produced a frame with a double top bar, almost similar to one I used in 1863.

CARBOLIC ACID.

"C. R." asks how carbolic acid should be used in bee-manipulations, as he does not like the smoker. It would be well if every bee-keeper was of the same opinion. Nearly every combustible burned in smokers contains creosote; this when mixed with the smoke colours the honeycomb, and enters the cells containing honey, giving it an unpleasant taste. I was the first to make this simple method of clearing bees from supers or combs public. The late Wm. Raitt of Blairgowrie acknowledged this, and gave me due credit for it. Mr. Cheshire, however, gives Raitt the credit, and others repeat the error. To empty supers of bees, or to drive bees from combs, take medium brown paper, and smear a little on both sides, then quickly but cautiously insert between the combs, and if the day is warm the bees will retreat in a few seconds. The tops of the bars should have a slight touch of the acid; a feather answers the purpose very well, and will be found useful to insert

between the combs to thoroughly cause the bees to retreat. I prefer crude acid, and to prevent robbers a cloth dipped in a weak solution should be at hand to throw over the crown of the hive. The only care needed with carbolic acid is never to use more than will leave the odour, and only on the opposite part you wish the bees to retreat to.

PLAGIARISM.

Plagiarism and appropriating the ideas of others has been rather common of late, and when an editor gets information from one and credits another with it, it cannot be said of him that he is clever. A bee book was published some two years ago, and the reviewer called upon readers to give their opinion, especially that part on removing bees to the Heather. T. Bonner Chambers, Esq., did so, and gave a quotation from the pages of the *Journal of Horticulture* which read not unlike the passage in the book, and asked where the author of the book got his information, but neither the editor nor author replied. There has been appearing in numerous papers and journals articles by "J. Sarginson," which read almost word for word as a portion of the Highland and Agricultural Society's prize essay. The editor of *The Rural World* informs me that it was copied from the *Westmoreland and Cumberland Advertiser*, having been delivered by "J. S." as a lecture. I have as yet been unable to find this individual. Should this meet the eye of any reader of his acquaintance full information of his whereabouts will oblige.—
A LANARKSHIRE BEE-KEEPER.



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fumigator (W. H.).—We have not seen the article to which you refer, nor the vendor's description of it. Perhaps more particulars will be forwarded in due time. We are glad, however, that you have at last found something that will destroy green fly and thrips.

A Monstrous Phalus Wallichi (T. W. S.).—The flower sent is very interesting as a structural peculiarity. The two petals and one of the sepals have disappeared, and in their place there is an additional lip partially enclosing what would be the ordinary lip. The flower thus has two sepals and two perfect lips but only one column. Were there many flowers on the plant of similar formation?

Apple Golden Ducat (W. W.).—In the "Fruit Manual" the following description is given of the above little known Apple. Fruit, above medium size, 3 inches wide, and 2½ inches high; round, and obtusely angular. Skin, rich yellow, having some pale broken streaks of crimson on the side exposed to the sun, and the whole surface strewed with large russet dots. Eye, open, with divergent segments, like Blenheim Pippin, set in a pretty deep and even basin. Stamens, median; tube, funnel-shaped. Stalk, about 1 inch long, slender, inserted in a wide and deep cavity. Flesh, yellowish, tender, juicy, sweet, and briskly flavoured. Cells, roundish, obovate; abaxile. A dessert or cooking Apple; in use during October and November. A very old Apple, mentioned by Worledge.

The Cucumber Tree (S. B.).—This popular name is applied to the *Averrhoa Bilimbi*, a native of Goa and other parts of the East Indies, and is now cultivated in South America. The tree is only about 8 feet high, and produces a beautiful green, smooth, fleshy fruit, of the size and shape of a small Cucumber. Rheede says that the fruit when ripe is excellent to eat, but when unripe they are preserved with sugar, or vinegar and brine, and although it should be of an agreeable acid

flavour when ripe, yet before they are ripe they are excessively sour. Burman says they contain a grateful acid juice, from which a syrup is made, and a conserve of the flowers, which are esteemed excellent in fevers and bilious disorders. Rumphius seems to think that, even when fully ripened, the fruit can never be eaten raw, but is only used to cook fish, fowl, and other viands, to give them an agreeable acidity, in the same way as we use sorrel and verjuice; they are pickled in brine and eaten as we do olives or capers in conjunction with meats; and preserved in sugar, or with a little saffron, they are recommended to be eaten by those who go sea voyages. The tree is a member of the Oxalis family, and you will find specimens of the fruit in the No. 1 museum at Kew.

Stephanotis floribunda (J. S.).—As you say the plants have had a good season of rest, plunge these in pots in brisk bottom heat. Those planted out may be top-dressed with rich material and have the temperature raised to 65°. If syringed twice daily they will soon start into growth. If there is any trace of mealy bug about the plants syringe them frequently with a weak solution of petroleum and water, 1 oz. to the gallon. When the plants are growing strongly it is difficult to get at this insect, for it establishes itself in the points of the shoots and in the flower trusses. The young plants, wintered in a temperature of 60°, will have new roots and will need larger pots, supplying water with care afterwards. The Stephanotis does well in fibry loam, one-seventh of manure and sand. Plants that are thoroughly root-bound and in large enough pots but lack vigour will bear the reduction of their roots by one-third if done carefully. They quickly establish themselves again after they once commence growing.

Management of Vines (M. B., Ayrshire).—Some Vines show bunches on the laterals when four or five leaves are produced, and bunches ought to be visible on your Vines now, though you give no indication of the length and strength of the growths. If there are clusters of growths from the spurs the weaker should be removed by pulling them off one at a time from each spur daily, till two of the best are left, and when one of these containing a bunch is safely tied to the wire and not likely to break afterwards the duplicate may be removed except there is space of between 18 inches and 2 feet between the spurs along each side of the rods. When bunches form the ends of the laterals producing them should be nipped off at once two, or three leaves beyond, according as there is room for the development of the foliage. This topping should be done when the leaves are the size of a shilling. The process is illustrated in Barron's "Vines and Vine Culture," free by post from this office for 5s. 3d. Aerial roots are the consequence of a moist atmosphere, and sometimes indicate sluggish root action in the soil. One bunch to each lateral is usually sufficient, and superfluous bunches may be removed when those intended to ripen have set the fruit and the berries are ready for thinning.

Treatment of Ferns (G. W.).—Much more peat has been used in the compost for these plants than is really necessary. The cost of good peat after it has been conveyed a long distance by rail is a considerable item annually where plants are grown on a large scale. Many Ferns grow equally well in good loam, rough leaf mould that has laid for twelve months, and sand, with the addition of sandstone broken to pieces or soft bricks. Large plants in many cases do not need potting more often than every second year. When large plants of Davallia Mooreana begin to be bare or crowded with old rhizomes the plants should be broken up and repotted. They lose a few fronds, but soon recover and grow all the better afterwards. Large plants may be potted every second year, cutting away a few of the old rhizomes so as to work a little fresh soil amongst them, and they soon start into growth again and grow vigorously. This Fern does not need deep root room, and large shallow pans for it are infinitely better than pots. It makes a splendid basket Fern where plenty of room can be given it. If pieces are planted in baskets 18 inches over, the rhizomes will soon creep all round it and prove more effective suspended from the roof than a plant in either a pan or pot. Microlepia hirta cristata is a useful decorative Fern, but the stove is too warm for it. In too much heat it soon becomes a prey to scale. The roots of large plants can without injury be reduced, and in a short time they soon grow vigorously again. This Fern usually produces a quantity of small crowns, which at potting time should be taken off and potted up singly. They make handsome plants for decoration in 5 and 6-inch pots, and if well hardened they stand in good condition for a long time. Plants that have been used for this purpose soon start again into growth, when they can be cut into two or three and grown on for the same purpose again. Stove Adiantums will do in the same compost, and strong growers will bear the reduction of their roots without much injury, where this must be done to keep them healthy in the same size pots. The more delicate the variety the greater should be the care in reducing them. All Ferns that it is necessary to grow on should be placed into larger pots without disturbing their roots.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. B.).—The specimen is not a good one for determination, and the flowers were too withered to be examined. It is probably a Boronia or

Tetratea, and in either case cuttings 2 inches long of the half-ripened wood can be inserted in a compost of sand and peat under a bellglass and placed in a cool frame or greenhouse where they can be shaded from the sun. They will require careful attention to prevent damping, and the bellglass should be removed every morning and wiped inside. The soil also must not be allowed to become dry or they will suffer in that way. All cuttings of this kind need close watching to ensure success. (J. H.).—1, Acacia armata; 2, Acacia pulchella. (A Very Old Subscriber).—A small flowered variety of Odontoglossum pulchellum, similar to that originally named O. Egertonii. (Morpeth).—The Daffodil with white sepals and a yellow crown is Narcissus bicolor Horsefieldi, the other is Narcissus princeps.

Renewing Combs (Delta).—To renew combs at this season remove all the outer ones having no eggs nor brood, leaving those with brood untouched until a more convenient season when there are no eggs or brood in them. In place of the removed combs give full frames of foundation; these will be extended and filled with brood much quicker than the old combs, and is a capital method of spreading brood and filling the hives with bees. The manipulation will not in any way deteriorate nor lessen the supply of honey.

COVENT GARDEN MARKET.—APRIL 9TH.

TRADE very dull. A few samples of new Grapes to hand from 5s. to 10s. per lb.—Strawberries in good supply, meeting a heavy sale.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, ½ sieve	2	0	to	6	0	Oranges, per 100	4	0	to	9	0
" Nova Scotia and						Peaches, dozen	0	0	0	0	0
" Canada, per barrel	18	0	25	0	Red Currants, per ½ sieve	0	0	0	0	0	
Cherries, ½ sieve	0	0	0	0	Black " "	0	0	0	0	0	
Grapes, per lb.	3	6	6	0	St. Michael Pines, each..	2	0	6	0	0	
Lemons, case	10	0	15	0	Strawberries, per lb.	4	0	8	0	0	

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Artichokes, dozen	0	0	to	0	0	Mushrooms, punnet	1	6	to	2	0
Asparagus, bundle	6	0	12	0	Mustard & Cress, punnet	0	2	0	0	0	
Beans, Kidney, per lb.	1	6	0	0	Onions, bushel	3	0	4	0	0	
Beet, Red, dozen	1	0	2	9	Parsley, dozen bunches	2	0	3	0	0	
Brussels Sprouts, ½ sieve	1	6	2	0	Parsnips, dozen	1	0	0	0	0	
Cabbage, dozen	1	6	0	0	Potatoes, per cwt.	3	0	4	0	0	
Carrots, bunch	0	4	0	0	" New	0	3	0	6	0	
Canliflowers, dozen	2	0	4	0	Rhubarb, bundle	0	2	0	0	0	
Celery, bundle	1	0	1	3	Salsafy, bundle	1	0	1	6	0	
Coleworts, doz. bunches	2	0	4	0	Scorzolera, bundle	1	6	0	0	0	
Cucumbers, doz.	3	0	5	0	Seakale, per bkt.	1	0	1	3	0	
Endive, dozen	1	0	0	0	Shallots, per lb.	0	3	0	0	0	
Herbs, bunch	0	2	0	0	Spinach, bushel	1	0	2	0	0	
Leeks, bunch	0	2	0	0	Tomatoes, per lb.	0	6	0	0	0	
Lettuce, dozen	0	9	1	3	Turnips, bunch	0	4	0	0	0	

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Anemone, dozen bunches	1	0	to	4	0	Maidenhair Fern, dozen	4	0	to	9	0
Arum Lilies, 12 blooms	3	0	5	0	" bunches	4	0	to	9	0	
Azalea, dozen sprays	0	6	1	0	Mignonette, 12 bunches	2	0	4	0	0	
Bouvardias, bunch	0	6	1	0	" Fr., large bch	1	6	2	0	0	
Camellias, dozen blooms	1	0	4	0	Narcissus, 12 bunches	2	0	6	0	0	
Carnations, 12 blooms	1	0	2	0	Pelargoniums, 12 trusses	1	0	1	6	0	
Crocuses, dozen bunches	1	0	2	0	" scarlet, 12 bchs	6	0	9	0	0	
Daffodils, dozen bunches	2	0	6	0	Primroses, dozen bunches	0	6	0	9	0	
Deutzia, per bunch	0	6	0	9	Primula (double) 12 sprays	1	0	1	6	0	
Epiphyllums, doz. blooms	0	0	0	0	" (single) 12 sprays	0	6	1	0	0	
Eucharis, dozen	4	0	6	0	Ranunculus, doz. bunches	3	0	4	0	0	
Forget-me-not, doz. bchs.	3	0	6	0	Roses (indoor), dozen	1	6	3	0	0	
Gardenias, 12 blooms	4	0	6	0	" Red, 12 blooms	3	0	6	0	0	
Hyacinths (Dutch), in boxes each	1	6	3	0	" Tea, white, dozen	1	0	3	0	0	
Hyacinths (Roman) dozen sprays	0	6	1	0	" Yellow	2	0	4	0	0	
Lapageria, 12 blooms	2	0	4	0	" French, per bunch	0	0	0	0	0	
Lilium, various, 12 blms.	2	0	4	0	Spiraea, dozen bunches	6	0	9	0	0	
Lilium longiflorum, 12 blooms	5	0	8	0	Tuberoses, 12 blooms	1	6	2	0	0	
Lily of the Valley, dozen sprays	0	6	1	0	Violets, dozen bunches	1	0	2	0	0	
Marguerites, 12 bunches	2	0	6	0	" French, per bunch	1	0	2	0	0	
					" Parme, per bunch	3	0	4	0	0	
					Wallflowers, doz. bunches	2	0	6	0	0	
					White Lilac, French, per bunch	4	0	5	0	0	

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi, dozen	6	0	to	12	0	Ficus elastica, each	1	6	to	7	0
Arum Lilies, per dozen	8	0	12	0	Foliage plants, var., each	2	0	10	0	0	
Arbor Vitae (golden) doz.	6	0	14	0	Genista, per dozen	3	0	12	0	0	
Azalea, various, per dozen	18	0	30	0	Hyacinths, 12 pots	6	0	9	0	0	
Christmas Rose	0	0	0	0	Lily of the Valley, 12 pots	12	0	18	0	0	
Cineraria, per dozen	6	0	10	0	Marguerite Daisy, dozen	6	0	12	0	0	
Cyclamen, per dozen	12	0	24	0	Mignonette, per dozen	9	0	12	0	0	
Daffodils, 12 pots	6	0	9	0	Musk, per dozen	0	0	0	0	0	
Deutzia, 12 pots	6	0	9	0	Myrtles, dozen	6	0	12	0	0	
Dracena terminalis, doz.	24	0	42	0	Palms, in var., each	2	6	21	0	0	
" viridis, dozen	12	0	24	0	Primula (single), per doz.	4	0	6	0	0	
Epiphyllum, per dozen	0	0	0	0	Rhodanthe, per dozen	8	0	10	0	0	
Erica, Cavendishi, per pt.	2	0	3	0	Roses (Fairy), per dozen	10	0	12	0	0	
" various, dozen	12	0	18	0	" 12 pots	12	0	30	0	0	
" ventricosa, per doz.	13	0	30	0	Saxifraga pyramidalis,						
Euonymus, var., dozen	6	0	18	0	" per dozen	0	0	0	0	0	
Evergreens, in var., dozen	6	0	24	0	Spiraea, 12 pots	12	0	8	0	0	
Ferns, in variety, dozen	4	0	18	0	Tulips, 12 pots	6	0	9	0	0	

Bedding Plants in variety, in boxes and pots.



CABBAGES.

DIFFICULT indeed is it to say when a crop of Cabbages is most useful to a farmer. Sown now, Sutton's Early Oxheart affords a grand supply of green food by the end of August, when pastures are so often bare, and green fodder of any kind is a boon. Sown in August, and planted out in October, the ordinary Drumhead is in use in June, July, and August, and is then of especial value on East Anglian corn farms, both for ewes and for lambs kept for stock or for hoggets. In Dorset, where the lambing is exceptionally early, Cabbages are regarded as especially valuable in the last three months of the year, and this crop is obtained from spring sown seed. In folding for use in yards or out on pasture for store cattle, cows, and pigs, Cabbages are equally useful, and as by management they can be had at any special season or throughout the year they are certainly worthy of a more prominent place than is usually given them.

For dairy cows they must be used with care, as cows always consume such succulent food greedily. A moderate quantity daily in winter and early spring used with other food always does good. In summer as pasture grows bare, and in autumn as it becomes less nourishing, Cabbages are a wholesome change, especially if used alternately with tares or green Maize, and there is then no risk of unpleasant flavour in the butter, which there certainly is if cows are allowed to have either as much Cabbage or green Maize as they can eat. In southern counties, where Maize answers as a fodder plant, Cabbages should be sown in April to form a successional crop to it, and for general purposes it is best now to sow early Oxheart with Intermediate and Late Drumhead, as these three fine sorts give an excellent successional supply for a long time in autumn and winter.

On many farms plants from seed sown last August are left in the seed bed all winter. The intention is to leave them in the seed bed till February and then plant out in the field, but very often the planting cannot be done till March in a wet late season, the crop is thus retarded by fully a month. If part of the August sowings are planted out in autumn, then the spring planting forms an admirable succession. Autumn planting is often avoided because of the heavy losses among the plants during winter and the consequent labour of replanting, but it must not be forgotten that much time is lost in this way. A much better plan is to drill the seed on rich land about the middle of August, to run the horse hoe between the rows once or twice after the plants are visible, but not to single the plants till February or March, when any risk of loss will be at an end. By this plan the plants sustain no check, and little, if any, transplanting will be required. The land available for the purpose may have recently been cleared of a crop of winter Oats, which in ordinary seasons are ripe in July, or it may have been foul land cleaned and cropped with Mustard which is either folded or ploughed in. The extra outlay for seed which drilling involves is the only objection, but that is surely well counterbalanced by the more speedy and certain growth, and the avoidance of all the attendant risk and cost of transplanting. When land cannot be had for drilling, then the plants must be raised in a seed bed, a pound of seed so sown being calculated to afford enough plants for an imperial acre. The distance apart of the plants should depend upon the sort as well as upon the condition of the soil. We have known late Drumheads placed 3 feet apart advantageously in a rich loam, and we have found it answer as well in lighter soil to have the rows 30 inches apart, and the plants 20 inches apart in the rows.

The weight of this crop per acre has a wide range, of which the minimum may be placed at 20 tons, and the maximum as high as 40 to 50 tons, and the sight of a huge fully developed "Drumhead," weighing some 40 or 50 lbs., carries conviction with it of the possibility of a crop of the higher weight per acre. No doubt Cabbages are an exhaustive crop, but then so is everything else more or less so; but we have only to bring our cultivation up to the standard of excellence implied by the gigantic fifty pounders, and we shall not care to trouble our heads about "exhaustion." Why, we have even heard objections raised to the cultivation of Winter Oats upon the score of exhaustion, and to all such alarmists we say, Keep the soil well stored with fertility, do not suffer weeds to rob it, and then you need have no fears about exhaustion. Bring a little common sense to bear upon the matter, and it will be obvious that nothing is easier than the regular storage of the soil with plant food upon the simple but indispensable plan of judicious compensation.

WORK ON THE HOME FARM.

In sowing Clover or seeds for mixed layers with spring corn avoid fields infested with Charlock or Poppy seed, because the double crop prevents hoeing, and the rollers are run over the corn and seeds as soon as the plant is well above the surface. Hoeing should be begun early on foul land, and it is here that a really good drill hoe proves so useful. Never waste money upon the purchase of an old drill, but have as strong and perfect an implement as possible; then if you have a set of corn hoes they can be put on the drill now, and much good work be done, much time and labour saved. But the hoes must be uniform in size and position, and the implement well under control, or harm may be done to the corn, and much of the hoeing otherwise badly done. We have seen an entire row of corn spoiled by a loose hoe, and we have seen more than half the weeds missed or only bruised by the hoes. The master or foreman should always watch the working of the hoes for the first turn or two up and down the field, and as frequently as possible afterwards, and a reliable man set to follow the implement. A small field of Carrots should always be sown on every home farm, both for home consumption and for the requirements of the hunting or hackney stables. A few Carrots are always useful for horses, and we consider them indispensable for dairy cows in the last three months of the year. It is of especial importance that the land should be clean as well as fertile, as young Carrot plants are so small that they are soon overgrown by weeds. No soil is without weeds of some sort or other, and hoes must be briskly at work at once after the plants are visible. Quick germination is promoted if the seed is kept damp for about a week before sowing. This is done by thoroughly mixing two bushels of sand with 6 lbs. of seed per acre, taking great care to well separate the seed. Then spread the mass out thinly upon a barn floor, and keep it moist by a slight occasional sprinkling with water. The plant then appears so quickly after the sowing is done that it has a fair start of weeds, and with careful hoeing and singling a full crop is not difficult to obtain. Under good management a crop of Carrots should not prove more expensive than any other root crop, and it is certainly so useful as to be worthy of a little extra care.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	1890. March and April.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass
Sunday	30	30.119	48.1	44.0	S. W.	deg.	deg.	deg.	deg.	In.	
Monday	31	30.263	46.2	41.1	N. E.	45.2	59.6	35.8	99.9	27.9	
Tuesday	1	30.382	41.2	37.6	E.	44.8	51.5	33.8	95.6	28.9	
Wednesday	2	30.184	42.1	38.4	E.	43.9	49.8	31.8	97.2	31.8	
Thursday	3	30.132	45.8	41.3	E.	43.6	55.3	34.9	100.6	34.9	
Friday	4	30.139	42.8	40.5	N. E.	43.8	59.3	32.9	102.4	32.9	
Saturday	5	30.120	44.6	39.4	N.	44.3	58.8	30.5	97.4	30.5	
		30.191	44.4	40.3		44.4	55.4	33.8	97.8	31.5	

REMARKS.

30th.—Unbroken sunshine throughout.

31st.—Brilliant early; fine and generally bright day.

1st.—Cloudy early; bright fine day.

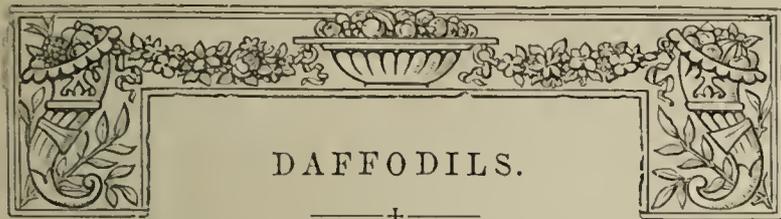
2nd.—Bright throughout.

3rd.—Fine and bright.

4th.—Mild, cloudless day; clear, cold night.

5th.—Mild and bright in the morning; hazy with a little cloud in the afternoon.

A rainless and almost cloudless week, with cold E. and N.E. winds. Mean temperature almost exactly the average, the maxima being high and the minima low.—G. J. SYMONS.



DAFFODILS.

—+—

SINCE the times of the old herbalists, or for something like 300 years, Daffodils have been favourites amongst hardy flowers, and for a good portion of that time some of the chief types have been represented in our border plants. The fact that so many produce their flowers with the earliest harbingers of spring would alone have sufficed to insure them prominent attention. But in addition to that, their flowers, even of the oldest varieties, are distinguished by considerable beauty of form, and to this is added, in numerous instances, a delightful fragrance refreshing and never overpowering. When, therefore, amateur or professional gardeners turned their attention to the improvement of such plants the result could in a measure have been foreseen, though it is doubtful if any of those who first engaged in the work adequately realised the character of the progress that would be effected.

Had the admirers of the Daffodil—using that term as a general popular designation for the whole of the *Narcissi*—confined themselves to the introduction of species and varieties found wild in other countries, the group would have been much more limited than it is at the present time. The genus *Narcissus* as represented by its wild forms is not a large one by any means, including less than a score of well-marked species. These too are comparatively local in distribution, being mainly confined to southern Europe. They are, however, extremely variable in a state of nature, and intermediate forms have been found that serve as connecting links between the species, due in some cases probably to hybridisation, and perhaps in others merely to seminal variation without the introduction of related species. We have recently inspected a large collection of imported *Narcissi* of the Ajax section, and it was extremely interesting to note the number of distinct forms corresponding to many that have already been named.

This variability is one of the characteristics of the *Amaryllis* family, and when Dean Herbert applied himself to the study of hybridisation amongst the plants constituting that group, it was not surprising that the *Narcissus* should receive a share of attention. The result was, that in a number of experiments made by crossing the species, seedlings were obtained presenting characters so nearly intermediate between those of the parents, as to leave no doubt that they were genuine hybrids. These were probably the first definite attempts to improve the Daffodils, and the success achieved was sufficient to lead other experimenters in the same direction, with the result that considerable additions were made to the forms available for garden culture. It is only within the last twenty years, however, that the range of variation in the Daffodils has been fully demonstrated, and still more recently that the plants have attained to a high degree of popularity. The writings of Mr. J. G. Baker, Mr. F. W. Burbidge, and several amateur contributors to the horticultural Press, have assisted greatly in placing the *Narcissus* in a prominent position amongst hardy plants. Several nurserymen also have made specialties of the plants, have formed large collections, and by frequently exhibiting the flowers at the principal shows have familiarised the public with the soft and harmonious shades and gradations of yellow the varieties present.

As in all cases where plants possess marketable value the effort to secure novelties has led to an influx of varieties which in some cases are so nearly alike that only the keenest connoisseur can

distinguish them. Recognising this difficulty as one that was likely to retard the popularity of the plant the Royal Horticultural Society organised a Daffodil Exhibition and Conference in 1884, with the special objects of at once displaying the characters of the *Narcissus* family, and by the help of a Committee to remove the confusion then rapidly increasing in the nomenclature, and to reduce the "too-much-alike" varieties to fewer types. Good work was effected in this direction, but the lapse of six years has provided the Committee with matters requiring further attention, and it was consequently resolved to arrange for another Exhibition and Conference in the present year. This was opened at Chiswick on Tuesday, and continues until Friday this week, and all who wish to see what has been effected in the improvement of the plant would find themselves well repaid by a journey to Chiswick.

It is not only as a garden plant that the Daffodil has become of importance, the demand for the flowers has created an important industry, and enormous quantities are now sent into the London and other markets during the spring months. Especially in the Scilly Isles has the business been developed, and of the 200 tons of flowers which are said on good authority to be exported thence annually Daffodils form a large proportion. From France and Italy also come early consignments, while to later supplies the home growers about the metropolis contribute largely. A visit to Covent Garden on a market morning in the early spring months, especially about Easter, shows conclusively how important a position the production of Daffodil flowers for sale has assumed, and yet the trade has grown up entirely within the past few years.

The strong points in favour of Daffodil flowers is that they last well when cut. With ordinary care in packing they travel safely, and they are in nearly every case exceptionally well adapted for arranging in vases or bouquets, or for other floral decorations. Some, like the simple and double forms of the Poet's *Narciss*, are unrivalled amongst outdoor flowers for all purposes, even for button-holes, sprays, and wreaths. Still another point is that some members of the family can now be had for fully half the year—namely, from December to the end of May. Many are adapted for culture in pots, are forced early with little trouble, and then, last of all, they are cheap. There is, in consequence, no mystery about the popularity of the plants; but it is to be hoped that reasonable restriction will be placed upon the introduction of so-called novelties, and thus avoid the bewilderment that amateurs are apt to experience when names are multiplied without attendant distinctions in the plants denoted.

Over 500 seedling forms have received names, and may be found in trade catalogues, for the practice has been evidently followed in some cases of naming nearly every seedling raised in which the smallest character could be discerned as a distinction. Where it is desired to form collections as large as possible these may all be worthy of a place, but those who can only provide space for limited number the most distinct only are suitable. It is disappointing to find a supposed novelty so much like others already in our care that they can scarcely be distinguished except by a most careful examination. It is probable that between 600 and 700 names have appeared at different times, but there are at least 500 that have been set down as distinct. Of these 200 are included in the *N. pseudo-Narcissus* group. Of the *N. incomparabilis* and *N. Tazetta* groups there are perhaps 200 together while of the three hybrid types Leedsi, Burbidgei, and Barri there are fifty each.

One purpose for which Daffodils are admirably adapted has not been noticed—namely, for planting in turf on slopes, or under trees. In such positions they are seen to the best advantage, and for several weeks past the mound near the Cumberland Gate of the Royal Gardens, Kew, has been gay with the thousands of Daffodils there planted. In scores of similar places, where few other plants

would thrive under the dead shade of trees, these seem to flourish, and their flowers come at a time when they can be the most appreciated.—L. CASTLE.

CULTURE OF CHICORY.

JUDGING from the questions which are from time to time asked through the horticultural press for information on this subject it would appear that such a valuable salad plant as Chicory is not well known in British gardens. The leaves, though bitter, make a wholesome and appetising small salad when cut quite young, and the blanched growth, known to the French by the name of Barbe du Capucin, furnishes an excellent winter salad when dressed in the French style. The heads when stewed and served with butter are nearly, if not quite, as palatable as Seakale, which they resemble very much in flavour. As all the garden varieties of the Chicory have originated from the wild plant there is a tendency—more marked in some varieties than in others—to degenerate, so that care should be taken to obtain seed from a carefully selected strain, if not the roots would very likely be worthless for producing heads during the winter and spring months. A deep, light, and ordinary rich soil, such that the best specimens of Carrots, Parsnips, and Beetroot would be expected to result from, is suitable to the growth of Chicory. This having been previously dressed with short manure and deeply dug into it should be trodden over and raked level; then draw drills, running north and south, about 16 inches apart and 2 inches deep, and in these sow the seed thinly any time between the middle of April and the middle of May, closing the soil in the drills with the feet, treading and raking it level afterwards. When the young plants have made a couple of inches of growth thin them out, first at 6 inches in the row, afterwards drawing every alternate plant, should none "go off" in the meantime. Take advantage of showery weather for doing the work, removing seedling weeds at the same time. The Dutch hoe should be run deeply between the rows a few times during the summer and early autumn months, as much with a view to destroying weeds as accelerating growth in the plants. So treated I have known roots of Chicory attain to the size of fairly good specimen Carrots. The finer the roots are the better specimens of Barbe du Capucin or blanched growth may be looked for.

TAKING UP AND STORING THE ROOTS.

Towards the end of October or early in November, when the leaves of the plants have decayed, the crop should be taken up with a digging fork, care being taken to injure the roots as little as possible in the operation. They should then be laid in a border in a dry situation, the same depth in the soil as they were before. Before doing this, however, some calculation as to the probable number of roots required for forcing into growth in the Mushroom house, cellar, or shed during the interval from the first week in December to the middle or end of the following February should be made, as the roots required for that purpose may be buried closely together perpendicularly in rows about 6 inches apart, and at the depth indicated. This would take about one-third of the roots. The remainder should be given a distance of 6 inches from plant to plant in the row, and 13 inches between the rows, keeping the crown of the individual roots half an inch above the soil. Early in February place over the plants or roots, or a portion of them at short intervals, improvised troughs, about 9 inches wide, the same in depth, and 8 feet long, the ends being 1 inch above the sides as a means of keeping the board (of the same length and width as the individual boxes), forming the lid in position when covered with sufficient litter, leaves, fern or leaf mould to exclude air, as the assistance of fermenting material is not necessary at this time of year to start growth in the roots. Thus grown Chicory of the finest size and quality is obtained.

A covering of long litter or fern may be put over the laid-in roots during the winter months as a protection from frost. Ten or fifteen days before the first blanched heads of Chicory are required the desired number of roots should be taken up and packed about 4 inches apart in any old shallow boxes that may be at hand, or flower pots 9 to 12 inches in diameter, working any kind of light soil among the roots up to within half an inch of their crowns. Then place the boxes or pots in a Mushroom house or any other convenient place where daylight and frost can be completely shut out from the plants, otherwise the process of blanching will not be thoroughly completed. When the leaves have made a growth of from 7 inches to 9 inches they will be fit for use. Successional batches of roots should be put in to force every ten days or a fortnight, according to the demand and means of production. The same roots if allowed to remain in the boxes and pots will yield a second, though naturally not so fine a crop, of Barbe du Capucin.

As everyone desirous of having a supply of blanched leaves of Chicory during the winter months may not possess the necessary Mushroom house, cellar, or shed to produce them in I will give a very simple and at the same time almost natural way of obtaining the object in view. Instead of taking up the roots allow them to remain undisturbed in the ground, simply removing the decayed leaves and any small weeds that may be amongst the plants; then strew a mixture of lime and fresh soot around the crown of the individual plants, and cover a few rows at intervals of a fortnight with troughs or narrow boxes of the description indicated above, covering these with a few feet thick of fermenting leaves. Of course the plants or roots not covered with boxes or pots should be covered with a little litter or fern or sifted coal ashes to prevent them being injured by frost. In this way very satisfactory results in the way of solid, crisp, and well blanched heads of Chicory may be secured. If a constant supply of Chicory should be required for small salading the seed should be sown every three weeks from the middle of April to the middle of October, the supply during the interval from the end of October to the following May being obtained from the blanched leaves. The early and later sowings should be made in a warm situation, the midsummer sowings (from the end of June to the end of August) being made in a rather moist position. In growing Chicory for this purpose the seed should be sown broadcast and thickly. Watering at the roots in dry weather is all that is necessary till the produce is fit for cutting. Do this as soon as the plants have made the first three or four leaves. Crimson-flaked Chicory and the Large-rooted Brussels (Witloef) are the varieties generally cultivated for salading.—H. W. WARD, *Longford Castle, Salisbury.*

AN AMATEUR'S EXPERIENCE WITH ORCHIDS.

[Read by the Rev. F. D. Horner at a meeting of the Wakefield Paxton Society.]

(Continued from page 295.)

TEMPERATURE.

As to temperature, I have never subjected the Orchids to any extreme in the ranges of either heat or cold. I have no really very hard and fast lines in temperatures. Cold winds and bright sun outside will at times run them up and down beyond the normal limits, do what we will, but I take all care to keep well clear of danger point either way. I often stretch a point, or rather a degree or two, for the sake of air, it is so much to these air plants. On frosty nights all the Orchid houses are covered with sheets of strong sacking. I find this a great help and benefit. It saves any forced heating of the pipes, and produces a softer and more kindly and more restful warmth than heated pipes alone. I am sure it is more healthy for the plants to keep cold out than to put so much pipe heat into the house. Besides which, if anything by mischance did go wrong with the fire, or even the boiler itself, on a keen winter's night, the sacking sheets over the glass would save an immense amount of heat from loss by radiation.

As a rule I have kept near the well known temperatures for warm and cool Orchids, only I never have the winter night temperature in the cool houses lower than 50°, and by day 55°. There is no trouble with these in summer but keeping them cool enough, which perhaps we cannot accomplish when outside temperature is 70° in the shade. The warm and intermediate night temperatures in winter are both much the same, about 60°. I take care to keep the Phalænopsids, Vanda Sanderiana, and some others in the warmest quarters, but all the Cattleyas, even *C. citrina*, Dendrobis, Vandas, Aerides, Angreæcums, and a great mixture of other species winter well, and indeed always grow together. If winter day temperature rises to 65° I try to gain a little fresh air.

In summer day temperatures I think that beyond 75° fresh air is worth much more than greater heat. I have noticed that my warm Orchids grow more slowly than with some other cultivators, but they make very solid growth, and also that I am often late on in the flowering season, but still they come in time. As the Orchids are all close at hand, I have often left the East Indian and other warm species with the house open till almost midnight on calm and balmy summer nights—*i.e.*, with an outdoor temperature not under 60°. Of course I have instrumental help in registering degrees of heat and moisture, but we may in part be our own thermometers in Orchids. If ever we feel faint and stifled and uncomfortably heated in an Orchid house, or shivery and cold and draught-smitten, we may be sure that so it is also with the plants themselves. Of course I am assuming that we are in good order and "set right," like the thermometer. If the houses are comfortable I often never look at the glass.

MANURE.

This savoury, not to say burning question, is one that happily concerns the Orchid grower in a very light and slight degree.

Indeed, the very term "epiphytal," which applies to so many Orchids, because of their growing upon parts of other plants, such as branches of trees, implies not very indirectly that Orchids cannot be very gross and sensual feeders, or require much if any solid food. An epiphyte is a plant that uses another, not for any purely parasitical purpose, as our Mistletoe does, which is rather a mean way of getting a livelihood, but simply as a favourable position, to which it clings by radical attachment, and from whence it can best secure the sufficiency of light and air and moisture that are the sweet and simple necessities of its most temperate life. Such is the epiphytal Orchid, and I have used no manner of manure to mine. Those, however, that are somewhat more terrestrial, and that seem to like some amount of vegetable *débris* to grow among, and may best be managed in pots, with leaf mould and fibry soil among the compost, these seem not to despise a weak solution of liquid manure in their growing season. I indulge a little in this way such Orchids as *Peristeria elata*, *Cymbidiums eburneum*, *Mastersoni*, and *Lowii*, *Thunias*, and *Calanthes veratrifolia* and *Veitchii*. I use the clear dark liquid from the farmyard, but scarcely stain clear water with it. Occasionally also, in the summer time, I sprinkle the floors with a solution of this liquid. It seems to help the colour and substance of the leaves and growth, and this is as far as I have gone with manure for Orchids.

SHADING.

The light is so pure in the open country, with the glass kept clean, that I find by the middle of March and until mid-September the sun may be too powerful for the *Phalenopsis*, *Stanhopeas*, and others unable to bear bright sunshine. Anything in flower is, of course, kept shaded, but I have never used any "summer clouds," or other manner of pigments to dim the glass. A dull day, under any sort of shading, is the *perdidi diem* of every Orchid in the house. I have tiffany or other light material in such lengths that some parts of the house can be shaded longer than others. The *Cattleyas* and *Lælias* get the most sun, and the *Vandas*, especially *Sunderiana*, have a fair amount; *Aerides*, *Angræcums*, and *Saccolabiums* have morning and afternoon sun only. However, as soon as the sun shines athwart the rafters in the afternoon, and for a while in the morning, the whole of the warm house has the chequered sunshine.

The plants are allowed to flower where they have grown and budded, I do not try to prolong their bloom in any colder house. If we could have our plants in flower for as long as we liked, I fear we should exhaust them all, and it is some safeguard against our selfishness, a wise check upon the lust of the eye, that we should suffer a more timely touch than ours to fall upon the flower.

Flowers of many Orchids are of immense duration—longer it may be under cultivation than when growing in the open air at home, and I am conscious of having made and repeated the mistake of leaving the flowers too long upon the plant, although beyond keeping them dry and out of the sun, I have not attempted to prolong their lives.

REST.

I have not given any of the warm house Orchids what would be called "a cool dry rest," partly because I have no quiescent vinery or such-like resting place to give them. I am too young in Orchids yet to have any right to speak dogmatically, and would not knowingly do so; but I am not sure that a dry cold is as truly ripening to growth as a moderately dry warmth. I could imagine that a high parched heat might cause some Orchids to shrivel in their rest, though I think nothing short of an oven could make ripe growths of *Dendrobium Bensoniæ* do that. But I should explain that, though the plants at rest are warm and dry, it is not in a parching heat. I am obliged to keep Orchids in all stages of growth together in a much mixed collection, where many species are winter growers. However, I have not found that an atmospheric moisture, congenial to plants in growth, is too damp and exciting for those at rest. I have resting shelves near the glass, with the pipes some feet below, and here the air is a little drier. Here *Cattleyas* and deciduous *Dendrobies* neither break prematurely into growth nor are short of flower. Here, too, the fat and fleshy *Catasetums*, *Mormodes*, *Cycnoches*, and others, alike impatient of moisture when at rest, sleep safe and soundly.

PESTS.

Against all the parasitical enemies of this nature I use simply a mixture of softsoap and tobacco liquor in rain water, and find it sufficient against aphids, thrips and scale. Red spider I am never troubled with, and consider that the constantly damp earth floors and stages greatly help me in keeping up a moistness fatal to the existence of this pest. I have never used fumigation among

Orchids and, by the way, may add here that I never apply the syringe for overhead watering of the plants, but I sponge the leaves when necessary.

I know of no young Orchid growths that are the better for being, accidentally or otherwise, left full of water—at least with me, and the rafters are guarded by zinc channels to avoid the falling of drip. This enemy I utilise by leading the drip to fall upon the pipes, whereby the drops are turned to moisture "for the good of the house." If a paraffin candle or two are expended in being rubbed on the pipes when hot they will not rust for very long indeed afterwards, even if dripped upon, and assume a very good dark brown colour, peculiarly, if I may so say, anti-rustic.



FIG. 39.—NARCISSUS BULBOCODIUM VAR. MONOPHYLLUS (see p. 321).

I use the syringe for damping walls and stages after a drying day, but the only Orchids I do water overhead are *Dendrobium Falconeri* and *Devonianum*, because if a red spider has the chance of a choice he will certainly not overlook such eligible foliage as theirs. Sometimes I have had damage done by vile monsters, emerging perhaps from eggs laid on stems of newly imported plants, and nothing avails against such abominations but hunting them down. I once got some huge grubs with formidable heads out of *Chysis bractescens*, and would have liked to know what they would have been eventually, but I fear we cannot afford to take any interest in clearing up these mysteries beyond that of clearing them out.

POTTING.

I need not say much on this point of culture, because so much has been said, and it is well known that the two great errors in potting or replanting Orchids lie in using too much material other

than crocks, and too much pot room. Roots of the epiphytal Orchid have, like leaves, a love of light and air, and in many species seem never so happy as when wandering where they will out of the pot or basket, and free of the material it contains. This seems mainly useful as a medium for conducting moisture to their highly absorbent surfaces. Roots as of the Vandas I find are never so vigorous and so free as when the crocks are merely surfaced with a bright living layer of sphagnum that admits the air. It requires more attention to watering than a dense mass of it would; but a ready supply and quick passage of water is essential to the welfare of an Orchid root in active growth. Preferably I repot the plants at the time found to be best for each, just as they show signs of fresh growth, but never wait for any time if a plant is out of health. Anything is better than leaving a plant alone, either in ill health or under conditions conducive to it. A sick plant has usually to go into a lesser pot or basket, and a small raft or block is often a better convalescent home than either.

A FRIEND IN THE ORCHID HOUSE.

I would just speak one word for my friend the green tree frog. May his tribe increase, though it never does so in this country. I have provided him with what seemed a desirable family residence. I have grown tropical aquatic plants for him, and made tempting little marshes in shady places, but he has only sat and croaked in them. With the exception of the toad, he is the only legitimate fauna of the Orchid house. The difficulty is to keep him in bounds, as he will get out if possible by any available outlet, such as an ill-fitting door bottom, or unguarded ventilator. All my openings are in the roof near the top, and I have to fix sheets of perforated zinc over the apertures to keep the frogs inside. The holes in the zinc are just large enough to be too small for bees to get through. Bees I found to be an abomination in the Orchid house because of their fertilising the flowers. I have caught many "bumbles" and other bees with the pollinia masses of Orchid flowers projecting on their heads, and they have set many of the flowers, and so shortened the life of fertilised blooms.

The green frog is a night feeder, and so a most welcome devourer of such pests as come forth in the night, and are also active enough to attract his attention. The slug is too slow for him, but he is partial to the woodlouse, and will take the running ant and the untidy spider, whom he arranges to catch while the spider is catching his fly, "thus saving the middleman's profit." Though he largely sleeps through the high day, he is always "at home" to the bluebottle on the buzz. He will also toward evening take amazing pains to secure a gnat, and I have seen him patiently stalk even such small deer as midges.

The tree frog finds himself in food, and drinks of the dews on the glass. I never knew him do act of damage to a flower or a tender growth. He always looks before he leaps, and that is always from one sure foothold to another. He is in no danger of drowning in the watertanks, for he swims well, and can walk out up the perpendicular sides. His feet are only half webbed, with toes provided with suckers that give him a faultless foothold. I take the precaution, however, of guarding the evaporating troughs, through which pipes run, for I feel sure he cannot like getting into hot water.

I cannot here think of inflicting upon you the list of the Orchids in our collection, but I have the books with me, and any one who wishes is welcome to see them afterwards. I am indebted to Mrs. Horner for a correct list, and for many interesting records most carefully and systematically kept, as to the species in bloom by week and month for several years past, and other details.

THE END.

Now I think I have lectured—or papered—long enough, perhaps more. I am conscious that the topics follow in a somewhat chance and motley way, like coloured beads strung haphazard on a thread; but I hope this has not left a confused impression of what I wished to say. If I have written too much, or too much as an enthusiast, you are of those who best will know how to allow for it. To excuse myself by telling you how long it is since I loved flowers would be to take you very far back in my life, for I grew and flowered the first plant to call my own when a child of seven years. It was only a common Tare or Vetch, and I trained it in the nursery window; or, if I might a moment draw aside the blind in a sick room window, it would be to let you see a little child all but given up for death. His empty medicine bottles, however, were by-and-by refilled with water, and pieces of Nasturtium placed in them. My father had put them there for me to amuse me as I got better, and I watched them strike root and grow. For many years after we enjoyed together the culture of florist and other flowers,

and among them were a few Orchids.—F. D. HORNER, *Lowfields, Burton-in-Lonsdale, Kirkby Lonsdale.*

PEACH GROWING IN FLORIDA.

ANYONE accepting "Waldo's" invitation on page 253, and going out without any further information, would be much disappointed

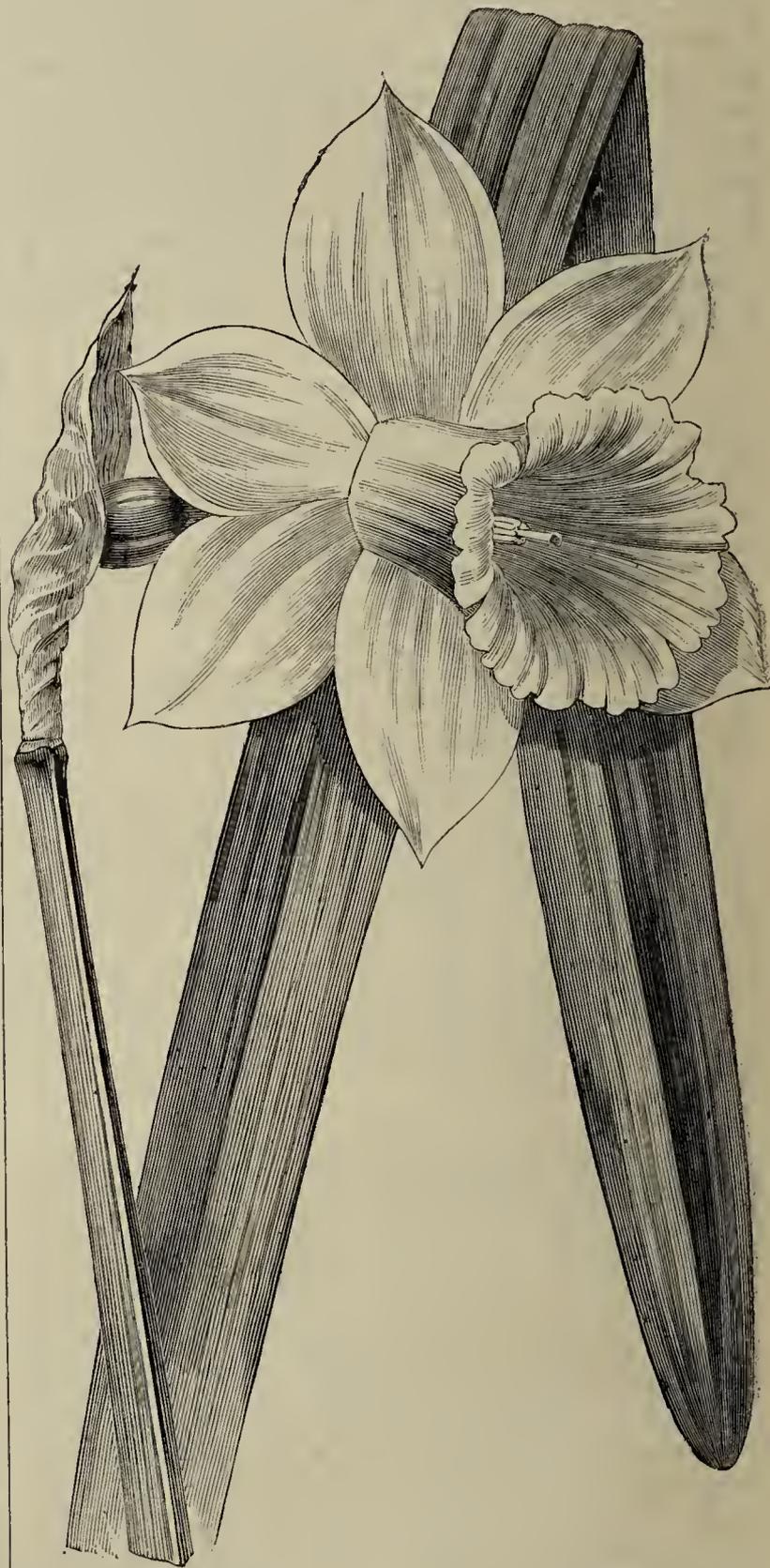


FIG. 40.—NARCISSUS PSEUDO-NARCISSUS BICOLOR EMPRESS (see p. 321).

on reaching Florida. I know something about the requirements of a Peach tree, and have seen them growing, or "attempting" to grow, in Florida, and came away under the impression that Peach growing in that country was not likely to be very successful. Anyone wishing to grow Peaches under similar conditions to those I saw there must plant them in white sand containing only a very trifling addition of decayed vegetable matter, give them a bottom heat of 73° or thereabouts when starting into growth, with roots kept very dry, a dry atmosphere and temperature ranging from

51° to 84°, and bright sunny weather from day to day. I need not tell any English horticulturist what the result would be, and I am sure very few of them would be inclined to start Peach growing under such circumstances.

With much that "Waldo" says I quite agree. The fault lies in the fact that he has not said quite enough in some places. For instance, he seems to have forgotten for a moment that there are no roads in Florida which an Englishman would consider worthy of the name. In their stead there are tracks through the forest which are covered 4 inches in depth with loose sand; there are no stones and it is quite impossible to make roads. Riding or driving is a matter of necessity there, even for short distances, and it takes about twice the time it would do in England to go an equal distance with a load. Anyone who contemplates making a home in Florida should therefore get "located" as near to a railway and a town as is possible, even if the "sand" costs them twice as much for the freehold. This disposes at once of the offer of "land" twelve or fifteen miles from a railroad at 10s. to £1 per acre; it would be very dear in the end if taken as a gift.

I quite agree with "Waldo" that there is a good opening in Florida for gentlemen of capital, but they must have plenty of brains also, and must be very careful about "the capital" when they get there until they can see their way clear to a good investment. Many have gone out and have been very much deceived by unprincipled persons and lost all they possessed. It is not safe to part with any money until one gets there and sees for himself. Americans and others out there have quite a different scale to ours when estimating the advantages of their country, the quality of their fruits, and many other things, which too often is not found out quite soon enough by would-be settlers.

That Florida is no country for a regular farmer is quite true. It is impossible to grow corn or vegetables in most places, and grass worth the name cannot be grown in most parts. I saw some very good pigs, however, notably one fine fellow under a plantation of Bananas. What connection the two had I did not exactly determine, and cannot say if the Bananas assisted the pig or *vice versa*. Strawberries are certainly said to bear from January to June. The crop, however, is something very different from what they bear in our own country. It was very amusing to me to hear an American say he had "shipped" seven quarts, and to find out that they were grown on 1½ acre. This was about the third week in December. I saw the beds on January 17th with some fruit ripe, but they were a long way apart. The owner said he made 2½ dollars—about 10s. 6d.—per quart for the first, but I could easily see a quart would take a long time to find, and although they bear for nearly six months the total weight of the crop would be very little more than would be got in England in one month, and the prices soon come down until they get to 10 cents, or 5d. per quart, and will not pay for sending away any distance. Only very firm-fleshed varieties are grown, as they have to be sent several hundreds of miles to market. The flavour is not so good as our varieties are when well coloured, and when sent any distance they are gathered before they are half coloured.

But places where Strawberries will grow are as a rule few and far between, as it is necessary for them in such a climate as Florida to have water not more than 18 inches below the surface, and some soil as well as sand to grow in. The roots will then be supplied with water to a certain extent by capillary attraction, but even in such positions as these I was told irrigation was almost a necessity at times. Time and space forbid me saying more at present. The country is a most enjoyable one in some parts to anyone fond of natural history in any of its branches, and especially to anyone interested in botany and horticulture, and I hope to say more on the subject at some future time.—W. H. DIVERS, *Ketton Hall Gardens, Stamford.*

SPRING FLOWERS AT HOME AND ABROAD.

HYACINTHS AND TULIPS.

It is said to be an attribute of the British that they never know when they are beaten, but go on fighting cheerfully, oblivious of the fact that according to every canon of warfare they ought to have given in long before. There is perhaps some truth in this, but excellent as is the trait, it is often wise to admit the truth, and set about studying the enemy's position in order to try and turn the tables on him at a future time. In our mimic battles of flowers this holds good the same as in other matters. To give familiar force to my moral let me come at once to the case in view. It is this. At present at representative spring shows both in England and Holland this year, candour demands the prompt admission that so far as Hyacinth growing is concerned we are beaten right out of the field. Were it a question of one or two points the matter might be debateable, for the flowers have to be carried in the mind's eye from Holland to England, and from England back again to Holland, but with quality quite 50 per cent. inferior the possibility of

error in judgment is precluded, and it is best to accept the fact and devote the time saved from argument to a consideration of the causes which have led up to a result so little gratifying to believers in the "never beaten" theory.

It may be doubted whether, so far as exhibitors are concerned, the Hyacinth holds the place that it did ten years ago in England. Those who recollect when the conservatory at South Kensington was filled with the magnificent groups of these flowers that used to be staged by Messrs. Cutbush & Son, Veitch & Sons, Barr, Carter & Co., B. S. Williams, and others, can realise the best how much the old order has changed. But it might be thought that although the trade growers do not show Hyacinths on the same scale as formerly, the increasing number of amateur cultivators would fill the blank, for it must be admitted that every year the number of these flowers grown in England largely increases. The growth in popularity of the Daffodil has not prevented a rapid advance in the cultivation of Hyacinths. It is home culture only, however, and so the shows are shorn of much of their former beauty. While from the exhibition point of view the Hyacinth has been receding in favour in this country, in Holland it has made a striking advance. When one sees it as it is grown by the Dutchmen now one discovers a development formerly undreamed of, and realises that there are potentialities in Hyacinths not evolved by English growers.

Cultivators in this country need not go far to discover some important



FIG. 41.—NARCISSUS PSEUDO-NARCISSUS VARIETIES:—1, MINIMUS; 2, MINOR; 3, NANUS (see page 321).

points in which they are placed at a great disadvantage with their continental rivals. One of these which has no small weight is the fact that every Dutch bulb grower of any standing has an almost unlimited stock from which to make a selection. Cultivating Hyacinths by hundreds of thousands, he is able to pick out the very best samples from his large collection; moreover, as quantity as well as quality is at his command, he may pot a thousand, or even two thousand bulbs from which to select fifty or a hundred plants for showing. The process is expensive, even though the bulbs are had for nothing; nevertheless, it can be and is practised. Take the other side. An English bulb grower, whether on a large or small scale, has his bulbs to purchase, and though he may, and no doubt will, receive examples of very high quality if he is prepared to pay for them, he does not receive the cream of the Dutchman's stock, and the first cost precludes him from buying on so large a scale as to place himself, so far as regards numbers, on an equality with the former. Unequal conditions therefore govern the contest. The home grower is handicapped from the very first. But clear as this point is in favour of the foreigner, it is not enough to account for the great disparity between collections of prize plants as grown in Holland and those grown in England, and it would seem that in Hyacinth cultivation we have still something to learn before the best results can be achieved. Perhaps we have been content with a moderate level of excellence, and have adhered to an established method of treatment instead of striving for further improvement.

The superiority of the Dutch-grown Hyacinths is not a thing of long standing. At the quinquennial Exhibition at Haarlem in 1885 the Dutch were as far behind their present standard as we are behind it now; and as proof that culture is mainly responsible for the difference, it may be pointed out that they enjoyed the same advantages respecting

quantity and quality of bulbs as they do at the present time. Improved methods of treatment are the prime factors in the change. It may be asked in what respect the superiority of the Dutch to the English Hyacinths is most manifest. They are better in nearly every way. The plants are dwarfer, the foliage more substantial, the spikes considerably larger, and the trusses much more symmetrical and compact. It would be almost impossible to give too high praise to the splendid examples of culture exhibited by Messrs. Byvoet, Kersten, and Van der Horst, or to the excellent specimens of Messrs. M. Van Waveren & Sons at this year's Show. With the exception of the third named these growers are well known to bulb dealers in this country, but they are wholesale vendors only, and therefore unknown to the great majority of those who buy Hyacinths in the United Kingdom. In Holland, in fact throughout the whole of the horticultural trade, their names are as familiar as those of the great English nurserymen are to gardeners here. These growers all exhibited in vastly improved form to their displays in 1885, and it is evident that they have learned much in Hyacinth cultivation for exhibition since then. Probably the culture of the bulbs for sale had monopolised their attention almost exclusively up till that time, and since then they have been devoting a certain amount of time and care to studying their requirements for exhibition. Mr. Van der Horst is a smaller and less known cultivator than those already named, but he had the finest individual examples of all those shown at Haarlem, and had a dozen of the best plants been selected from each collection in the Exhibition for competition he would have achieved a decisive victory. Comparing his selected dozen with, for instance, the twelve with which Mr. J. Douglas secured the first prize at the Royal Botanic Society's Spring Show on March 26th it must be confessed that the English flowers were so far in the rear that had they met in competition they would have been beaten almost pointlessly, although they appeared to be of about the average quality of former years. The Ilford varieties were La Grandesse, King of the Blues, Koh-i-noor, Czar Peter, Vuurooak, The Sultan, Souvenir de J. H. Veen, and Electra. The first six were shown extensively at Haarlem, and in far superior condition. Mr. Van der Horst's examples of La Grandesse and Czar Peter were magnificent, the trusses being quite 8 inches long, 4½ inches in diameter, and so closely furnished with substantial bells as to impart to the plants a perfect appearance of massive symmetry. And these were by no means the finest examples; they are merely mentioned as affording a direct comparison with the English-grown flowers. Von Schiller and King of the Blues, perhaps the two finest Hyacinths in their respective colours in cultivation, were equal if not superior to them; and far larger than any, if not quite so compactly furnished, were the enormous trusses of Jacques, a new variety, somewhat resembling Gigantea in colour, but a little paler; and the blue Pieneman. The latter is a well-known variety, with very large drooping bells. These magnificent trusses measured 10 inches from base to summit, and were well furnished.

It is important to state that the whole of the preceding remarks as to the Hyacinths at the Dutch Exhibition refer to specimens with only one flower stem. Obviously a clever manipulator might form fine examples by joining two or even three trusses, and this was evident in the classes at the Haarlem Show in which the restriction as to the trusses being confined to a single stem was not made, but these have been left out of consideration, as affording no direct bearing either on the merits of the varieties or the skill employed in their cultivation. In the majority of the classes the stipulation referred to was in force; hence a true idea could be formed both of the comparative qualities of the varieties exhibited and of the condition in which they were capable of being produced by the best treatment.

While it is evident from the manner in which the Dutch Hyacinths are exhibited that the treatment to which they have been subjected is different from our own, it is not easy to ascertain with exactitude the details of culture which are pursued with so much success. If not altogether silent on the question the Dutchman does not, to put the matter mildly, thirst to give information to whomsoever may please to ask. There is no great secret in the matter, but there is something worth knowing, as there is in everything until the nearest approach to perfection has been reached. If questioned he will tell you somewhat vaguely that much experience of the different varieties is requisite in forcing Hyacinths, that to have them by a certain date some require forcing early, others late, and some no forcing at all. This we knew before. But some deviations from English practice may be noted from personal observation. The latter, as preached and practised by the well-known growers before named and others, is briefly to pot good bulbs in 5 or 6-inch pots in October, using a compost of loam, leaf mould, decayed manure, and sand, leaving the tips of the bulbs exposed, and then plunging them for a few weeks in ashes or cocoanut fibre refuse before introducing them to the house. Mr. Douglas's plants above referred to were apparently grown in 6-inch pots. One of the first points which strikes the visitor in respect to the Dutch plants is the extremely small size of pots used. The majority of them were but 4½-inch, some smaller, none larger than 5-inch. Moreover, the bulbs are potted considerably higher than is commonly the case with us. A large grower and prizewinner told me he considered it quite sufficient to half cover the bulbs, and his plants thus treated were remarkably fine, though not the best in the exhibition. Questioned as to the compost, he informed me that the mixture generally used was composed of well decayed leaf mould, thoroughly decayed cow manure, and sand in equal parts. This he considered met every requirement of the plants. There was none of the loam so dear to English gardeners. Firmly potted in

this sustaining and thoroughly porous medium the plants made robust, sturdy, dwarf growth, with foliage as superior to the weak flabby leaves of the plants at the London Show, as were the massive trusses of bloom which rose above them. Sand is the plunging material employed in Holland, as would be guessed from the important part it plays in bulb cultivation for profit, and from the abundant supplies of it on the farms. I more than once expressed my surprise at the small size of pot used, and the reply was that large pots were not necessary to grow fine flowers if the bulbs were potted properly in suitable soil. Possibly the confined root space, allied to the firm rich compost, may be the secret of the dwarf growth and fine spikes of bloom.—W. P. WRIGHT.

(To be continued.)



DENDROBIUM ALBO-SANGUINEUM.

THE above name is suggestive of white and blood red, but neither seems to convey a correct idea of its colour to my mind. The sepals and petals are of a rich cream, and with the exception of the dark spots in the throat the flower is of a uniform character, which is not common in Dendrobiums. The throat spots I have heard described as of a black currant stain, which I think it more resembles than blood. It is a distinctly beautiful large-flowering kind, and appears to be rather infrequently referred to, but this fact alone is not sufficient to justify the assumption of sparse representation in collections generally. It forms a very compact yet sturdy growth, attaining a foot in height, but our recently acquired specimen has not quite attained to this length of growth, but there is a good prospect of it so doing by the end of another year. Its flowers are borne from the ends of the stems, which in our case has been six from a strong and fewer numbers on weaker pseudo-bulbs. Two flower-stalks issue bearing three each, and are slightly scented, possibly a full-grown bulb would give larger numbers than I have quoted. It flowers in an evergreen state, which is a distinct advantage. It is suitable for pot or basket culture, requiring good drainage, peat, and sphagnum. It enjoys abundant moisture and heat during the growing period, and should not be severely dried during winter, but may be kept cool with advantage.

DENDROBIUM JAMESIANUM.

To lovers of white flowers this Dendrobium should have many charms, for it is possessed of exquisite chasteness and beauty. The lip has a peculiar distinctness of its own as to colour—reddish orange. The name of the gentleman this species is honoured to bear, the late Mr. James Veitch, is sufficient proof of its value. The stems, which grow about a foot high, are covered with a black hair-like surface; the flowers, which are produced in pairs, issue from the point of the current growth. It is a good grower and certain flowerer. A small plant purchased from Mr. Cypher of Cheltenham by Mr. John Baily, Frome, a little more than a year ago, has just completed its second course of bloom, and is justly prized for its several good qualities. It lasts several weeks in flower if stood in a somewhat dry warm house, and shaded from the ill-inspiring influence on Orchid flowers—sunshine. It grows well in a pot, which from its moderate vigour need not be large, peat and charcoal with a surfacing of sphagnum moss meeting its requirements as regards the roots. Copious supplies of water should be given, and an evergreen disposition commands water at the roots more or less at all times. Severe resting would result in loss of vitality perhaps not easily restored.

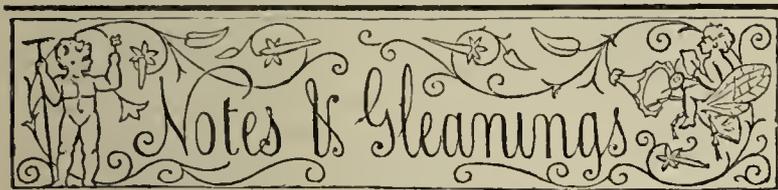
DENDROBIUM SUPERBUM.

This is a very fine spring-flowering Orchid, forming, as it does under generous treatment, very long pseudo-bulbs. It has a vigorous constitution, and is consequently very well suited to the conveniences of amateur growers not having a house set apart for their especial use. It is deciduous and of pendulous habit, a growth which for general convenience demands a basket, as suspended from the roof displays the blooms to far greater advantage than would otherwise be done. We have but a small plant growing on a charred block which last spring were two tiny air-rooted pieces, and though small we have this spring secured several of its striking mauve or purplish blooms in size quite in proportion to that of its growth. In its latter stages the sepals and petals assume much the same twisting character as the blooms of James Salter Chrysanthemum. In Mr. Proctor Baker's garden at Bristol *D. superbum* is grown uncommonly well, one plant

having 100 blooms expanded, another smaller one has given fifty, a total of 200 being made up with these and a few other plants of lesser size. The strongest growth measures 6 feet in length. During the growing season Mr. Archer, the gardener, finds a slight dressing of fish potash given occasionally proves very beneficial and incites a quick growth. Peat, sphagnum moss, and charcoal form a good rooting medium for basket culture, sphagnum being sufficient alone for blocks.

When under this latter treatment water must be applied frequently, either by dipping into an open tank or by syringing while growth is active. Twice a day would not be too often in bright weather. In baskets it must be regulated according to their size. It has a powerful and to some persons not a very agreeable scent, which has been described as that of Rhubarb, but visitors to whom I have submitted blooms with a view of ascertaining the correct scent, one verdict only was returned, and pronounced to be that of Turkey Rhubarb.

D. superbum giganteum is a very superior form both in size and colour. Flowers 6 or 7 inches across are produced of a deeper shade of purple. The growth does not attain the same length as in the species, nor is it so readily increased, but these deficiencies, if they can be so called, are fully surmounted by the superior character of the blooms. In the garden previously referred to a good plant of this has made two growths, each 18 inches long, on which are now expanded thirty of its noble and truly superb blooms. Now that the value of *Dendrobiums* is so fully advanced, the merits of those under notice should not pass unheeded, their distinct colours, large size, and perfume being sufficient to warrant the bestowal of more extended favours.—W. S., *Frome*.



EVENTS OF THE WEEK.—On Tuesday, April 22nd, the Royal Horticultural Society's Fruit, Floral, and Orchid Committees will meet in the Drill Hall, James Street, Westminster, at 12 noon. The National Auricula Society's Show will be held on the same day in the hall, and at 3 P.M. the Rev. C. Wolley Dod and Mr. Henwood will discourse on "Primulas." We may remind our readers that a meeting will also be held at 1.30 on Tuesday, in the Lindley Library, to discuss the Hall of Horticulture scheme. The Royal Botanic Society's second Spring Show will be held in the Regent's Park Gardens on Wednesday, April 23rd.

— **THE WEATHER IN THE SOUTH** has been somewhat cold during the past week for the time of year, and several slight frosts have been recorded. Fortunately so far the fruit tree flowers do not seem to have suffered, but show of flowers varies greatly in different districts. The early Pear trees are looking well in some gardens.

— **WEATHER IN THE NORTH.**—"B. D." writes from Perthshire:—"April 7th to 14th—Dry, cold winds from the W., latterly from the E. and N.E., have prevailed throughout the week, and in the last four nights frosts of from 2° to 4° on morning of the 11th. A highly favourable seedtime has been secured for our carse (not coarse this time, please) land, and sowing in this quarter is all but finished. The frost is, however, telling on young grass. The planting of Potatoes has begun here and there." Another correspondent sends a similar account from Stirling, adding that snow fell on the 14th inst., and 6° of frost were registered.

— **DEATH OF MR. J. S. MORGAN.**—The name of Mr. Morgan will be familiar to our readers through the periodical references to his gardens at Dover House, Roehampton. They, with the extensive ranges of glass structures, were maintained in the most scrupulously neat manner, and it was a common remark by visitors that they could see nothing that wanted doing. Mr. Morgan was an American banker of enormous wealth, and died suddenly in Italy, leaving fortune estimated at six millions sterling.

— **THE LIVERPOOL SHOW.**—The Exhibition held last week in St. George's Hall was not equal to those previously held by the Association. This, no doubt, is partially due to the late date, and for this the Committee is not responsible, as the Hall could not be had at any earlier date. It may also be due to the spring meetings having been discontinued for a year or two. Although there was a falling off in the

number of competitors for the prizes offered the miscellaneous exhibits were more numerous and varied than usual. The Exhibition was but poorly patronised by the public, and is therefore expected to prove a financial failure.

— **THE HORTICULTURAL CLUB.**—The usual monthly dinner and conversazione took place on Tuesday, April 8th, at the rooms, Hotel Windsor, Victoria Street. The chair was occupied by the Rev. W. Wilks, and there were present besides the Rev. E. Handley, Messrs. Cousens, Druery, Walker, &c., Mr. W. Ingram being the guest of the Club. Afterwards a most interesting paper was read by Mr. C. T. Druery on the "Wonders of Fernland." It was illustrated with some excellent diagrams and some beautiful specimens of dried fronds. The paper dealt very carefully with the germination of Ferns. It was stated that in the case of all Ferns, whether the gigantic Tree Ferns of New Zealand, &c., or the delicate Maidenhair, the spores from whence the plants proceed are absolutely microscopic. He then showed the various methods of



FIG. 42.—NARCISSUS TRIANDRUS ALBUS (see p. 321).

propagation, the ordinary one by spores, and the abnormal ones of bulbules and apospory. It was shown that of all the species of British Ferns there were to be found tasselled or crested forms, and Mr. Druery believed that if the habitats of the foreign Ferns were searched as carefully as our own land has been, similar departures from the normal growth would be found. The paper was a model of what such papers should be—severely correct as to its botany and scientific side, yet delivered in language that any intelligent hearer might understand even although previously unacquainted with the subject. A cordial vote of thanks was given to Mr. Druery for his valuable paper. We may add that Messrs. Thomson of Drumlanrig and Mr. Bruce Findlay of Manchester will be the guests of the Club at a special dinner on the 22nd on the occasion of their receiving the Veitch Memorial medals, and a large gathering of the members is anticipated.

— **THE KEW BULLETIN** for April, 1890, contains notes on CANAIGRE (*RUMEX HYMENOSEPALUM*), a new tanning material, which is said to add "weight to the leather." It is found "in large quantity in the sandy soil on both sides of the Rio Grande and northward over a large portion of Western Texas and New Mexico." The analysis of the root is as follows:—Tannin, 37.48; organic matter, 11.20; water, 12.07; ash, 0.20; and woody fibre, 39.05. Pistachio cultivation in Cyprus is also referred to; several pages are devoted to correspondence relative to Indian sugar; and note about "Mites in Sugar Cane" concludes the number.

— **ROCKETS.**—Rockets and other flowers are sometimes destroyed by caterpillars eating the heart from whence spring the flower stems. A pinch of hellebore powder will effectually prevent this.—W. T.

— **THE WEATHER AND FRUIT BLOSSOM IN KENT.**—A Faversham correspondent writes:—"It is too early to say much about fruit prospects. Plums and Cherries are flowering, but the weather keeps very cold, and we have had several severe frosts. This morning (April 12th) it was very sharp, ice in tubs and pails, and the ground quite crisp at 6 A.M., bright sun after, and I fear some damage must have been done."

— **THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—At a committee meeting of the above Society, held at the Caledonian Hotel, on Monday evening, the 14th inst., there was a large attendance. Fifteen new members were elected, and Messrs. Lewis Castle and T. W. Sanders were nominated for election. Mr. F. Q. Lane, The Nurseries, Great Berkhamstead, was elected an honorary member. The Secretary stated that owing to the epidemic of influenza the sick pay for the quarter had been very heavy, but at the present time only one member was on the sick list. He also announced that many members of the Society were anxious for support in establishing a convalescent fund, and brought up a circular which is to be sent to every member inviting co-operation. Letters and suggestions were read from various members relating to the register of gardeners out of employment.

— **INDIAN FORESTRY.**—The Punjab Forest Administration Report for 1888-89 was recently published. During the year 9000 acres were added to the area of gazetted forests in the Multan district. This area was taken up in pursuance of the policy of establishing irrigated plantations in connection with several new canals constructed in what are known as the "Bar" tracts—that is, the dry upland deserts of the Punjab. The number of forest fires increased during the year, and 17,617 acres were burnt as against 10,324 during 1888. The financial results are satisfactory. The net revenue amounted to Rs. 452,846, or nearly half a lakh in excess of the net revenue of the preceding year. The Conservator complains that the Working Plans Branch cannot get on with their work on account of the undermanning of the Department. As a consequence, working plans are only in force over 364 square miles, out of a total of 2000 square miles gazetted and 6000 controlled by the Forest Department. Experiments with exotics were made, but the result was not encouraging. European fruit trees have been introduced in many places with great success.—(Nature.)

— **EALING DISTRICT GARDENERS' IMPROVEMENT SOCIETY.**—The annual dinner of this useful and flourishing Society was held in the Victoria Hall, Ealing, on Friday evening last, the President, E. M. Nelson, Esq., in the chair. There was a large attendance of honorary and ordinary members, evidently deeply interested in gardening, and the chief feature of the evening was the distribution of prizes by Mrs. Nixon. These were in the form of books for plants or other garden produce exhibited at the weekly meetings between September and April. The system adopted is an excellent one, and worthy of extension. The members take what they think good to the meetings, whether one exhibit or a dozen, and three non-exhibitors are appointed to examine them and record the marks of merit to which they are entitled in a book; but no man, however extensive his exhibits, can have more than six marks at one meeting. This is for enabling good men in small gardens to have a fair chance of recognition amongst their friends more favourably circumstanced. The following gardeners obtained the numbers of marks appended, and received books in value accordingly:—Messrs. Long, 80; Greggs, 75; Roberts, 64; Cox, 52; Gate, 46; Baird, 43; Edwards, 34; Simmons, 33; Viner, 16; Dunk, 11, and Meridem 10 marks, this being the minimum number that entitles to a prize. Money prizes were also granted to the successful competitors of essays on Carnations, but their names are not included in the list before us. Mrs. Nelson gracefully complimented the recipients of the several prizes. Excellent speeches were made by the Chairman and Revs. Percy Myles and J. H. Hilliard, also by G. F. Nixon, E. Dawes, and A. Sewell, Esqs., as well as by the Secretary, Mr. E. Chadwick, gardeners and visitors. The gathering was in every way enjoyable and successful.

— **KOLA (COLA ACUMINATA).**—The Paris correspondent of a daily paper sends the following:—"A rival to caffeine as a muscle-bracing and stimulating drug has been found in Kola. Professor Haeckel of Marseilles admits the virtues of caffeine, but he says those of Kola are greater. He used it in the food of members of an Alpine Club, who performed mountaineering feats of an unusual kind without being tired.

The Colonel of the 160th Regiment at Perpignan, dosed by the professor with Kola, made the ascent of the Canigou Mountain near Perpignan to a height of 9137 feet, and felt quite fresh after his climb, which lasted twelve hours. He only halted once, and for twenty minutes, and ate nothing. The 124th Regiment was able last July to accomplish a march of fifteen and a half hours from Laval to Rennes under similar conditions. They covered a distance of seventy-two kilometres, and were able to go much further in the last hour. They walked at the rate of three and three-quarter miles an hour. Kola is better than Oats for giving mettle and staying power to horses. Perhaps the fasting men have got hold of alkaloid of Kola, of which a very small quantity goes a long way." Mr. J. Christy referring to this, stated in a following issue that "at first the supplies in this country did not exceed 1 cwt. per annum, but now it is imported in quantities varying from 1 to 5 tons per month for use as a substitute for Tea and Coffee." The tree is a native of Tropical Africa, and belongs to the same family as the Cocoa (*Sterculiaceæ*). The seeds are said to possess the property of purifying unwholesome water. The nuts have been found to contain more of the alkaloid caffeine than the best Coffee. Specimens can be seen in the Kew Museums.

— **THE ROYAL HORTICULTURAL SOCIETY.**—The following scheme of affiliation of local horticultural societies with the R.H.S. was passed by the Council, April 8th, 1890:—Local societies subscribing £1 ls. will be entitled to—I., Two copies of the "R.H.S. Journal" for circulation amongst the local society's members. II., To nominate one of their members to rank as a £1 ls. Fellow of the R.H.S., with all a £1 ls. Fellow's privileges with the exception of the "Society's Journal." III., One transferable ticket admitting to all the R.H.S.'s meetings and Shows, and which may be used by any members of the local society. IV., To purchase at cost price one silver and one bronze medal of the R.H.S. (a new medal is being struck, and until that is done the price cannot be fixed). Local societies subscribing £2 2s. will be entitled to—I., Four copies of the R.H.S. Journal for circulation. II., To nominate two of their members to rank as £1 ls. Fellows of the R.H.S., &c. III., Three transferable tickets admitting to all R.H.S.'s meetings and shows, &c. IV., To purchase at cost price two silver and two bronze medals of the R.H.S. Local societies are invited to send interesting exhibits and specimens of plants, diseases, &c., to the R.H.S.'s fortnightly meetings of the Floral, Fruit, Orchid, and Scientific Committees, and to correspond with the R.H.S. Secretary on any interesting horticultural subjects or events in their locality. The Secretary of the Royal H.S. will at any time be happy to assist the secretary of any affiliated society in introducing them to horticulturists or specialists able and willing to deliver lectures on interesting subjects before meetings of their local societies.

AMONGST THE DAFFODILS.

LAST week it was announced that the Royal Horticultural Society would hold a Daffodil Conference and Exhibition at Chiswick on April 15th to 18th, and as a consequence Daffodils have afforded the chief subject for consideration this week. The merits of the plants and their gradual rise in public favour are set forth on page 313, but before proceeding to a review of the Exhibition, it may be worth while to glance at the genus *Narcissus* as it is now constituted, and thus indicate the range of variation that exists naturally, and which has been so greatly extended artificially.

A REVIEW OF THE GENUS.

A brief reference to the leading types will suffice to show that, great as the variation is, it is yet combined with a uniformity of essential characters that renders it comparatively easy to recognise a *Narcissus* wherever it is found. Some of the types, however, present so many differences amongst themselves, that they have afforded ample material for the constitution of genera by botanists who are eager to make distinctions of this character. Out of the genus *Narcissus* as it now stands authors have at different times created over a dozen genera, but these are all discarded now, or the names are adopted as the titles of groups or divisions corresponding in some degree with the older genera. Our leading modern authority upon the *Narcissi*, Mr. J. G. Baker, has given much attention to the characters and classification of the species, and his method is now generally adopted. It possesses the rare merit of simplicity in botanical arrangements; it has therefore come within popular comprehension, and is adopted in the majority of trade catalogues. The method is so well known that it is almost unnecessary to remind readers that the characters upon which it is founded are the shape and size of the corona, which forms such a peculiar, and in many cases prominent, portion of a *Narcissus* flower. This is an unusual formation, and is somewhat puzzling to youthful botanists, as, coming between the perianth divisions and the stamens, it seems to take the place of a true corolla. To this cup, corona, coronet, and crown as it is variously

termed, much of the beauty of the Daffodils is due, and it assumes such distinct forms that the characters thus furnished are a readily recognisable means of separating the species into groups.

Three divisions of the genus are adopted, distinguished by the following names:—1, Magni-coronati, in which the corona is "funnel shaped or cylindrical, and as long as the perianth segments," which includes all the bold and handsome "Trumpet Daffodils," some of the finest of the whole genus for garden decoration, rich shades of gold predominating. 2, Medio-coronati, with a cup-shaped corona "about half as long as the perianth segments," comprising the numerous forms of the "Peerless" Daffodil, *Narcissus incomparabilis*, possessing a wide range in more delicate shades of yellow. 3, Parvi-coronati, having "a small saucer-shaped corona," including the charming graceful *N. poeticus* and its countless descendants, the purest white prevailing in the perianth divisions, while the corona often possesses in its margin the nearest approach to scarlet in the whole genus, bright shades of red affording a lively contrast with the quieter tints of the other sections.

Under the three heads named sixteen species and a number of sub-species are grouped, the garden varieties and hybrids having assumed such numerical proportions that they are excluded from a botanical arrangement, though their positions in the system are easily indicated. It would be impossible within the limits of this article to glance even at the leading varieties of the respective types, and it would be unnecessary also, as the most distinct and beautiful are enumerated in the report which follows. It may, however, be interesting to briefly note the species that really constitute the respective types from which the garden varieties have been derived. First in order under the "large crowned" Daffodils we come to the Hoop-Petticoat Narciss, *N. Bulbocodium*, in which the crown is extremely large and the colour ranges from soft yellow to pure white, as in the variety *monophyllus* (fig. 39, page 315). Next in order is the Trumpet Daffodil, *N. Pseudo-Narcissus*, the varieties and hybrids of which now constitute so large a group, mostly with very large coronas differing greatly in tint, but the richest golden tints are most frequent. There is, however, considerable range in size from the giant *maximus* to the diminutive *minimus*. Figs. 40 and 41, pages 316 and 317, indicate the chief characters of this species. Under *N. Pseudo-Narcissus* are now ranked as sub-species several forms that have been assigned a higher rank by older authors. These are *muticus*, a neat flower and good colour; the graceful and interesting *cyclamineus* so long lost to cultivators; major, to which *spurius* and *Telamonius* are related; minor, together with *nanus* and *minimus*; bicolor, a fine type, including *Horsefieldi* and *Empress*; *moschatus*, with deflexed flowers, and including some of the best white Daffodils such as *alhicans* and the drooping *cernuus*.

With the graceful *N. triandrus* the "medium-crowned" section commences, and the beautiful variety *albus* (fig. 42, page 319) is one of the greatest favourites in the genus, being admirably adapted for culture in pots. The *N. incomparabilis* forms follow, and in the exceptionally large variety *Sir Watkin* (fig. 43) we have a near approach to the *N. Pseudo-Narcissus* forms. The variety *albus expansus* (fig. 44, page 322) is one of the ordinary type of this group. *N. odoratus* and *N. juncifolius* are other species in the same group, but the latter is not so well known as the former, which takes its place as the *Campernelle* in many gardens, and is one of the most esteemed of the fragrant *Narcissi* for forcing purposes.

In the "small-crowned" division the first to be noted is *N. Tazetta*, the "Polyanthus Narciss," which includes large numbers of varieties that have taken their place more amongst "Dutch bulbs" for forcing than as outdoor garden plants. *N. papyraceus* (fig. 45, page 323) is regarded as a sub-species, and is one of the most familiar of market flowers early in the season as the old "Paper White" Narciss. The species *Tazetta* is geographically interesting for its comparatively wide range of distribution, as it is found from Europe to China and Japan. Historically it is also worthy of note as one that has been under cultivation during a number of years in Holland for export to this and other countries with the ordinary bulbs for forcing. *N. intermedius*, a South European species, and *N. gracilis* are old plants, but have been to a considerable extent superseded by newer favourites. *N. viridiflorus* is a curiosity from Morocco and Gibraltar, with green flowers. The *Jonquil*, *N. Jonquilla*, with small golden exquisitely fragrant flowers, is one of the most delightful members of the family, and is everybody's favourite.

Passing *N. scrotinus*, *N. elegans*, and *N. biflorus* as species of comparatively little interest, though the last named is sometimes found in old gardens and flowers freely, we come to the Poet's Narciss, *N. poeticus* (fig. 46, page 325), of which the varieties now form a large group, and few amongst the market flowers are more appreciated than the double or *Gardenia* flowered variety of this species, though all are valuable. The last to be enumerated is *N. Broussoneti*, which is chiefly interesting as one that had long been lost in cultivation, but re-found at Morocco and introduced in recent years.

THE HYBRIDS.

Following these the hybrids come under eleven groups, some of which in distinctness of characters almost deserve specific rank. Most of these are of recent production, but those raised by Dean Herbert are especially interesting as the forerunners of many more recent favourites, and as showing some of the leading characters of the types subsequently formed. Seven of these were depicted in the "Botanical Register" for

1843, when Dean Herbert accompanied the descriptions with a account of his experiments in hybridising the *Narcissi*. Two of these have been sketched, and are shown in figs. 47 and 48 (pages 326 and 327). The hybrid (fig. 47) resulted from crossing the wild Yorkshire Daffodil, *N. Pseudo-Narcissus* with *N. poeticus*, and was regarded by Dean Herbert as a variety of the *N. incomparabilis* type. The flowers had white perianth segments, and a yellow corona bright red at the margin and base. In fig. 48 is shown another hybrid also from a variety of *N. Pseudo-Narcissus* crossed with *N. poeticus*, in which a pale yellow tint predominated throughout the flower, the corona having a slightly darker hue. The others showed various degrees of intermediate characters between the species named. Dr. Leeds of Manchester and Mr. W. Backhouse of Darlington succeeded in raising a large number of hybrids, and since these have been placed in commerce several additional types or groups have been created. The following are adopted in Mr. Baker's classification:—*N. Bulbocodium-Pseudo-Narcissus*, a wild hybrid found near



FIG. 43.—*NARCISSUS INCOMPARABILIS SIR WATKIN*.

Oporto, intermediate between the species as expressed in the names; *N. Humei*, apparently from *N. Pseudo-Narcissus* and *N. poculiformis* (itself a probable hybrid); *N. Backhousei*, from *N. Pseudo-Narcissus* and *incomparabilis*; *N. Macleai*, an introduced plant apparently between *N. Pseudo-Narcissus* and *N. incomparabilis*; *N. juncifoliumuticus*, wild, between *N. juncifolius* and *N. triandrus*; *N. poculiformis*, already noted, origin uncertain; *N. Leedsi*, from *poculiformis* or *incomparabilis*, a beautiful group of which there are many forms in cultivation; *N. Barri*, from *N. incomparabilis* and *N. poeticus*, some of the varieties as *N. Barri conspicua* are very handsome with highly coloured coronas; *N. orientalis* is thought to be from *N. incomparabilis* and *N. Tazetta*; *N. Burbidgei*, from *N. incomparabilis* and *N. poeticus*, comprises a number of beautiful varieties; and *N. Tazetta-poeticus* is probably from the species named in its title, as it is found growing wild amongst them. From *N. Humei*, *N. Backhousei*, *N. Macleai*, *N. Leedsi*, *N. Barri*, and *N. Burbidgei* the principal recent garden varieties have been obtained, and they include some of the most graceful and soft tinted forms in cultivation. Some scores of these have been named and

authoritatively recognised as distinct, the *N. Barri* and *N. Burbidgei* forms being the most numerous, over 100 having been recorded.

THE CHISWICK EXHIBITION AND CONFERENCE.

The Exhibition in the conservatory was opened on Tuesday at 3 P.M. by H.R.H. Princess Mary, Duchess of Teck, and a number of Fellows assembled to witness the proceedings, and to inspect the Show. The exhibits are not so abundant as was expected, and the absence of amateurs is surprising when it is considered what a large number now cultivate collections of Daffodils. With the exception of the Rev. W. Wilks and Mr. Cowan, the Exhibition is confined to trade displays. These, however, comprised a large number of varieties, and fairly represent the types and forms of the genus. The most notable collections are the following:—

Messrs. J. Veitch & Sons, Chelsea, contribute a handsome collection of Daffodils, representing all the sections provided for in the schedule. No less than eighty-six varieties are included in the Daffodils and fifty-three varieties in the Tazettas or Polyanthus *Narcissi*, one of the finest representative displays of these useful varieties ever staged. All the flowers throughout are distinguished by their size, freshness, and distinctness. Seven new varieties were also shown, nearly all of the Trumpet or bicolor sections. Very distinct is one named *Prodigy*, with sulphur sepals and a gold crown partially contracted at the mouth.

Mr. James Walker, Ham Common, Surrey, has a magnificent collection of flowers and varieties staged in his most tasteful and effective manner. He has 200 neat glasses filled with flowers, twelve or more in each, and there are over 100 varieties. This is one of the best collections that even Mr. Walker has shown. Mr. Poupart, Twickenham, exhibits about 100 varieties of the best Daffodils for market culture. Some very handsome forms are included. Messrs. R. Veitch & Son, Exeter, have a small collection, but including several interesting forms of *N. moschatus* from imported bulbs. Some good forms of useful Daffodils are also included, very notable being *N. triandrus albus*, which comes with five and six flowers on a scape.

Messrs Barr & Son, King Street, Covent Garden, have a grand collection of 200 varieties, arranged in twelve classes, and they constitute a highly important portion of the Exhibition. A collection of new seedling Daffodils is also shown by Messrs. Barr.

From the Royal Gardens, Kew, comes a most interesting exhibit of 150 varieties arranged in their respective classes, and comprising several interesting varieties. The Rev. W. Wilks, Shirley Vicarage, Croydon, shows a collection of about sixty varieties, all grown in the open ground. The varieties comprise some of the most distinct, and the flowers are of good size, proving that they are well grown. For the silver medals offered by Messrs. Barr & Son, C. W. Cowan, Esq., Valleyfield, Pennycuik, stages collections of fifty and twenty-five varieties of Daffodils. Mr. Cowan also was the only exhibitor in the class for a collection grown by an amateur, and for which the Rev. W. Wilks offered a silver cup as a prize. The varieties are mostly of the *N. incomparabilis* and *N. poeticus* sections, and therefore collectively have a less imposing effect than the Trumpet Daffodils freely used in the other groups.

Some Fellows of the Society were under the impression that the Fruit and Floral Committees were also to meet on Tuesday, and several exhibits were brought that had to be returned at once. Mr. Shoesmith, The Gardens, Shirley Cottage, Croydon, showed twelve grand blooms of *Maréchal Niel* Rose from a plant two years old budded on a seedling Briar, and bearing 800 blooms at the present time. Flowers of *Camellia reticulata*, gathered from the original plant growing in a frame in the Society's garden, were also exhibited. Mr. Miller, Ruxley Lodge Gardens, Esher, sent a box of Mushrooms, and the Stott Company, Deansgate, Manchester, showed samples of their manure and insecticide distributor.

The programme issued for Wednesday included an opening address by Professor Michael Foster, reports of the Committee and Judges, and papers by Messrs. F. W. Burbidge, T. A. Dorrien-Smith, and the Rev. G. H. Engleheart. The arrangements for Thursday (to-day), are as follows:—Admission to the Gardens at eleven. The Conference will be resumed at 2 P.M., Mr. J. G. Baker, F.R.S., in the chair. Papers to be read:—"On the Natural History and Cultivation of the Trumpet Daffodil and its Hybrids," by the Rev. C. Wolley-Dod, M.A.; (Heer Krelage has been asked to read a paper on "*Polyanthus Narcissi*"); "On Irish Varieties of Daffodils, with special reference to the White Forms," by Mr. John T. Bennett-Poë; "Notes on Seedlings and Seedling Raising," by the Rev. G. H. Engleheart, M.A.; "Daffodils for the London Market," by Mr. James Walker. On Friday, April 18th, the Exhibition will close at 4 P.M.

A SELECTION OF VARIETIES.

The types and the species of Daffodils have been enumerated in the preceding notes, and it now only remains to point out a few of the best varieties shown in the respective classes.

Narcissus Bulbocodium varieties.—Conspicuous, the Large Yellow Hoop Petticoat, deep gold, very handsome; *citrinus*, or Large Sulphur Hoop Petticoat, a delicate pale tint; *tenuifolia*, or the Small Yellow Hoop Petticoat, similar in colour to the Large Yellow, but much smaller, as in the variety minor of the Pseudo-Narcissus type.

N. Pseudo-Narcissus Ajax.—*Maximus*, rich yellow, large trumpet; *Emperor*, pale yellow sepals and deeper trumpet; *Glory of Leiden*, one of the *Emperor* type, but larger; *Spurius Golden Spur*, rich yellow, large lobed trumpet; *M. J. Berkeley*, sepals deep yellow, trumpet large; *Captain Nelson*, sepals bright yellow, trumpet broad and open;

Her Majesty, light yellow, trumpet serrated; *Hudibras*, clear yellow sepals, deeper trumpet; *Spurius Henry Irving*, large yellow sepals, bright, with handsome trumpet; *Johnstoni Mrs. G. Cammell*, a charming shade of soft yellow and excellent form, a variety collected by Mr. Barr in northern Spain in 1888; *Blondin*, a fine variety, flowers large, sepals yellow, trumpet deeper; *Countess of Annesley*, sulphur

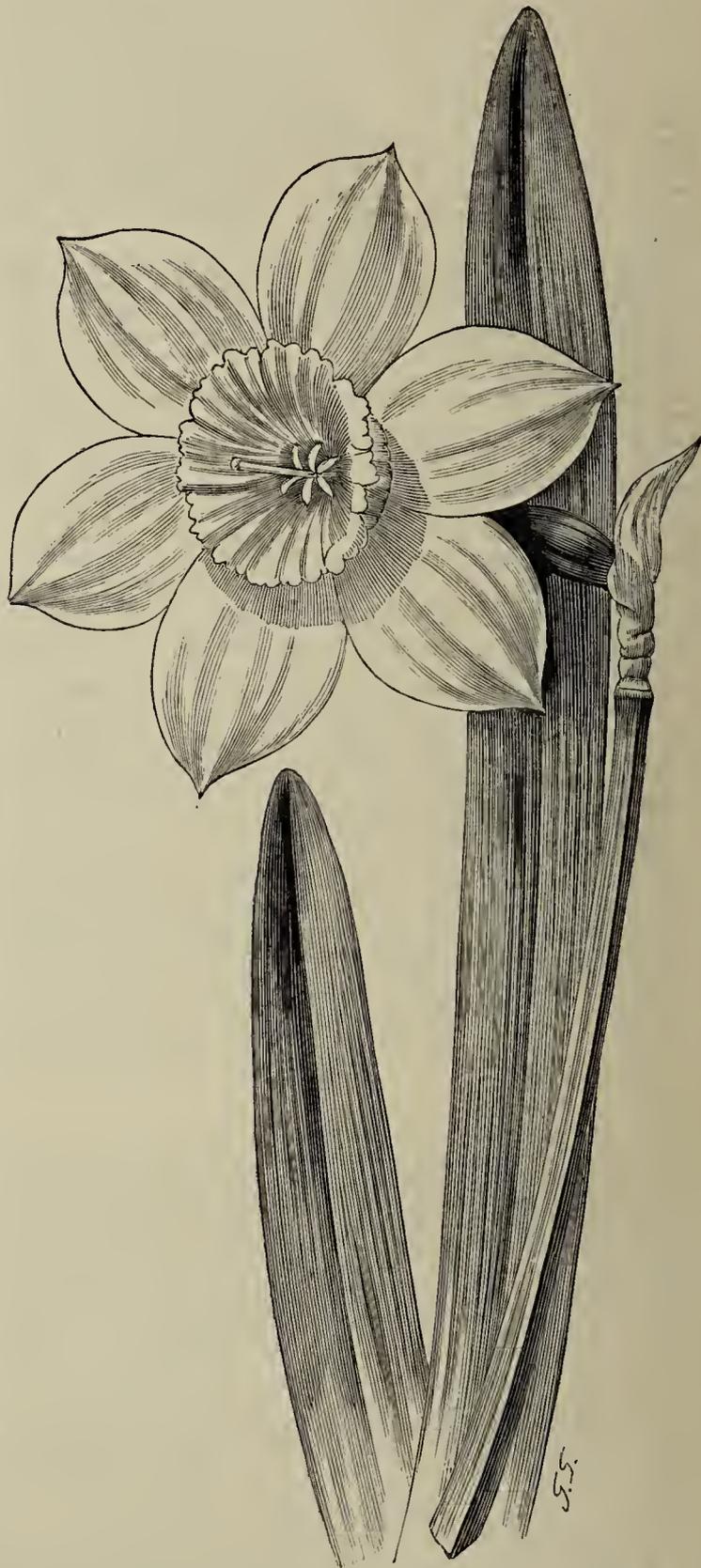


FIG. 44.—NARCISSUS INCOMPARABILIS ALBUS EXPANSUS (sec p. 321).

sepals, deep yellow trumpet; *obvallaris*, the Tenby Daffodil, of medium size, excellent shape, and rich yellow; and *John Nelson*, somewhat drooping, deep yellow.

Bicolors.—*J. B. M. Camm*, white sepals, primrose trumpet; *Empress*, white sepals, gold trumpet; *Michael Foster*, creamy sepals, rich yellow trumpet; *Dean Herbert*, pale yellow sepals, gold trumpet; *Horsefieldi*, white sepals, deep yellow trumpet; *James Walker*, creamy sepals, yellow trumpet, fine flower; *Harrison Weir*, white sepals, pale yellow trumpet.

White or Sulphur-coloured Varieties.—These are all elegant and delicate, the following especially so:—*Mrs. J. B. M. Camm*, *Sir Stafford Northcote*, *Lady Grosvenor*, *F. W. Burbidge*, *Dr. Hogg*, *cernuus pulcher*,

Colleen Bawn, tortuosus, Madame de Graaff, very handsome, white sepals and pale yellow corona of capital form; Minnie Warren, moschatus of Haworth, Mrs. Viucent, Snowflake, albicans, and William Goldring.

N. incomparabilis Varieties.—Mostly with sulphur or yellow sepals and deeper coronas. C. J. Backhouse, King of the Netherlands, Sir Watkin, Cynosure, Autocrat, Hogarth, Beauty, Gloria Mundi, Queen Sophia, very handsome large expanded corona, orange, pale sulphur petals; Frank Mics, Maurice Vilmorin, creamy sepals, rich orange corona, fading to the base.

N. Barri Varieties.—With yellow sepals and broad spreading orange corona. Sensation, Flora Wilson, William Ingram, Mrs. Dyer, Conspicuous, one of the best varieties in cultivation; Miriam Barton, Crown Prince, and Maurice Vilmorin.

N. Leedsii Varieties.—Charming pale creamy or white varieties, very delicate. Duchess of Westminster, Princess of Wales, Duchess of Brabant, Palmerston, Beatrice, Gem, Mrs. Langtry, Grand Duchess, Marie Magdaline de Graaff, and Katherine Spurrell.

N. Humei and other varieties.—One class is devoted to the varieties of Humei, Backhousei, Nelsoni, montanus, Macleai, Sabini, Barnardi, and tridymus. Of Humei there are not many representatives, one termed Hume's Giant differs chiefly from the type in the large size of the flowers. Backhousei also is not in strong force, but two varieties are notable—*i. e.*, Wolley Dod, an excellent form with large flowers, fresh pale yellow sepals, and rich yellow corona, and William Wilks, which has more colour in the corona, with an undulated margin. Two varieties of Nelsoni attract attention—*viz.*, Mrs. C. J. Backhouse, white sepals, the corona open and bright yellow, and aurantius, white sepals and deep orange corona. Examples also occur in several collections of *N. montanus*, *N. Macleai*, and *N. tridymus*, one of the last-named, termed Dr. M. T. Masters, being selected as distinct. Though class 7 is specially reserved for the graceful *N. triandrus*, it is not largely represented; the variety *albus*, with pure white flowers, bell-like coronas, and reflexed sepals is charming.

The N. poeticus and N. Burbidgei varieties.—Of the Pheasant's Eye or Poet's Narciss the varieties *ornatus*, *poetarum*, *tripodalis*, *angustifolius*, and *radiiflorus* are taken nearly in the order of merit, the first being extremely beautiful, the floral form excellent. Several of the *N. Burbidgei* varieties closely resemble *N. poeticus*. Some of the best are Baroness Heath, Ellen Barr, Mary, Falstaff, Princess Louise, Dandy, Mercy Foster, Crown Princess, Constance, and Model. The Campernelle, *N. odoratus*, the Jonquil, *N. jonquilla*, and the distinct little *N. juncifolius* are included in this group.

N. Tazetta varieties.—Examples of these are scattered through several collections, but the Chelsea exhibit is the largest and best. The leading varieties are Soleil d'Or, yellow sepals, deep orange cup; Grand Monarque, white sepals, lemon cup; White Pearl, white sepals, creamy cup; Sir Isaac Newton, yellow sepals, orange cup; Verlina, yellow sepals, deep orange cup; Bathurst, bright yellow sepals, pale gold cup; and Bazelman major, large flowers, white sepals, orange cup.

Double Varieties.—Perhaps the only double Daffodils that possess any real claims to beauty are the old forms of *N. incomparabilis* and the Gardenia-flowered double *N. poeticus*, the last named being far the best of all. The former comprise the "Codlins and Cream," "Eggs and Bacon," and "Butter and Eggs," as they are familiarly termed by many in preference to such learned designations as *aurantius plenus*, *albus plenus*, *sulphureus*, &c. Other double varieties are *N. capax plenus*, *N. lobularis plenus*, *N. Telamonius plenus*, *N. odoratus plenus*, and *N. cernuus plenus*, all yellow with the exception of the last, which is white. These are all included in the collections at Chiswick. New varieties were shown by several exhibitors, and submitted to the Committee, but their awards must be deferred until next issue.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 296.)

SOIL AND SITUATION.

"Loose methods, unsystematic, unbusiness-like procedure," writes Mr. Wright in the introduction of his prize essay "Profitable Fruit Growing," page 3, must give place to "sounder principles and more intelligent lines" of culture if the time is to come when "we shall to a far greater extent than now, and far more creditably, share in providing our population with the most wholesome of food, which will be increasingly required—fruit; the outcome of home effort and well applied labour in British gardens and orchards." Those are sentences full of meaning and importance, every one of which I endorse, and I would beg to express my opinion (it may seem late and tardy) of the work itself—*viz.*, "Profitable Fruit Growing," that it is a mine of sound information and practical guidance on hardy fruit culture, which the most experienced may consult.

Soils are a compound of organic and inorganic elements, the mineral being the original. The inorganic substances in the soil are derived from the degradation or decomposition of rocks by the action of air, water, frost, grinding by glaciers, and chemical as well as mechanical action; and the organic are mainly due to the decay of animal or vegetable matter, and are subsequent to the inorganic, therefore must have a conversionary action, as the first forms of

organic life had to live on soils destitute of organic remains. Gardeners set much store on humus, the result of a gradual decomposition of animal or vegetable remains, but it is evident that the first plants which grew on the earth had other sources than humus from which they derived carbon. Carbonic acid, water, and oxygen acting on granite, in which are associated three distinct minerals—quartz, mica, and felspar—disintegrated, form the basis of a fertile soil.

The inorganic basis of soils consists of substances derived from

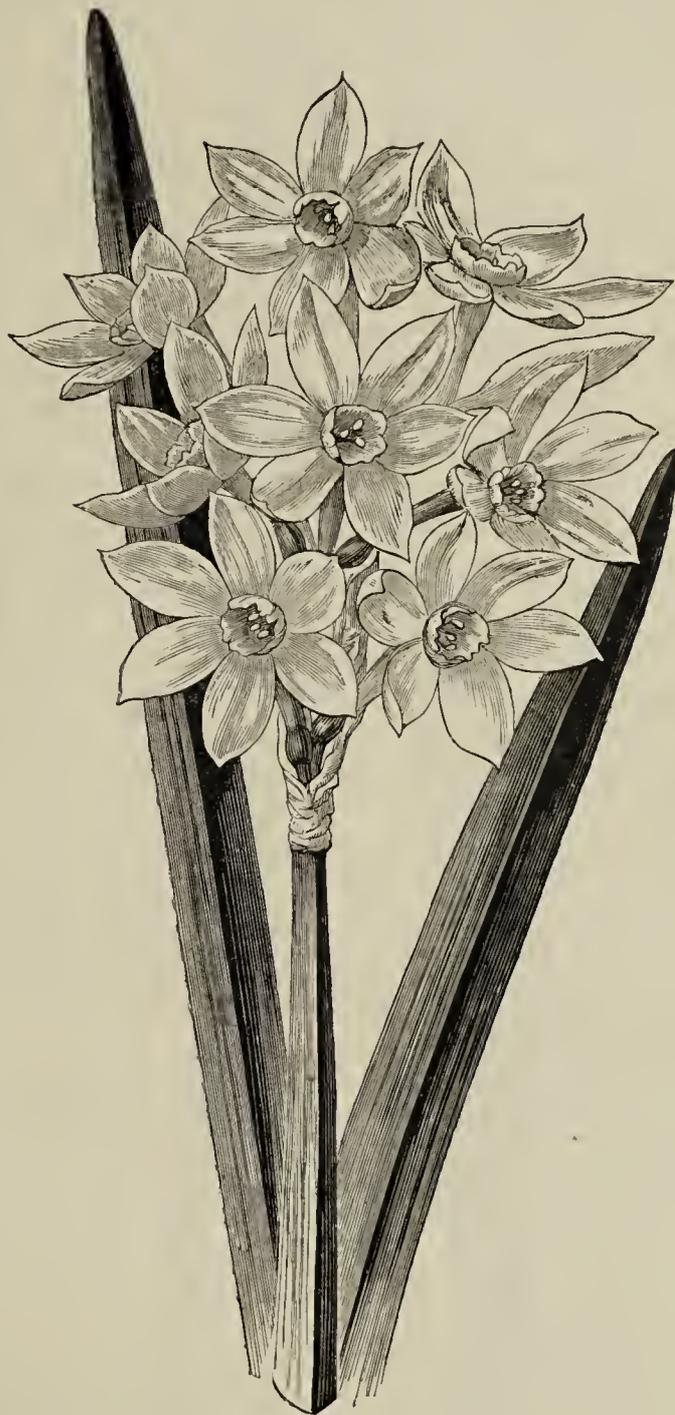


FIG. 45.—NARCISSUS TAZETTA PAPYRACEUS (see page 321).

various kinds of rocks, the bulk of which are silica, clay, and lime mixed in no definite proportion. They afford, together with organic remains independently of saline matters, a diversity of soils. For technical purposes soils are classified, but for our purpose it will only be necessary to refer to those most in vogue with cultivators—*viz.*, the indefinite terms sandy, clayey, marly, and calcareous. Sandy soils are extremely porous, afford a ready passage to air and water, as well as to the roots of plants, being warm and dry. When they consist of little lime, alumina, or humus, the sand mixed with gravel, they are very poor, yet with an addition of 3 to 5 per cent. of humus become available for root crops. With an addition of clay or marl sandy soils are rendered more compact, retain moisture for a longer period, manuring is more efficient; still they are too poverty stricken to be of use for fruit trees without incurring expenditure in fresh soil and humus-forming substances for which commercially considered there is no adequate return. Nothing short of loamy sands should content the

fruit grower, and though some are admirable for vegetable crops, particularly when deep, they may from containing less than 20 per cent. of clay not be staying enough for fruit trees. Sandy loams, containing 20 to 30 per cent. of clay, and not much less than 5 per cent. each of lime and humus, are admirable Apple soils when not impregnated with excessive amounts of oxide of iron. All sandy loams require manuring correspondingly heavier and oftener than clay soils. Loams are sandy when the silicious matter predominates, and clayey when the clay is ascendant. A strong loam consists of 30 to 50 per cent. of clay, and less, or not more than 5 per cent. each of lime and humus, the remainder sand and other substances. Such form admirable soils for orchards and fruit gardens.

Clay soils contain above 50 per cent. of clay—a combination of silica with alumina, and quickly absorb water, oils, and fatty substances, retaining of water 70 per cent. without allowing it to drop away, and when only moderately moist, but compact, water penetrates it but slowly. Clay dries slowly, shrinks, cracks, readily takes up humus and humic acid, which seem to combine partly chemically and partly adhesively, in result remaining durably fertile. Clay also contains other substances, such as oxide of iron, free and insoluble silica, lime, magnesia, potash, soda, &c. Oxidation of iron gives colours to clays—protoxide brown, peroxide red, and hydrated protoxide blue or greenish. Clay soils are unfitted for fruit trees until weathered, improved by draining, liming, deep stirring, and manuring. When subjected to cultivation so as to have a foot in depth or more of ameliorated sufficiently porous soil to allow heat, air, and water to enter freely, clays become very productive and are not so soon exhausted as loams.

Marly soils are not so retentive of moisture as clay, nor so porous as calcareous soils. Clay marls, consisting of 50 per cent. or more clay, are too stiff for fruit trees; but, containing more soluble silica than perhaps any other soil, they are very suitable for mixing with soils that are too light and porous, requiring more compactness and staying power to fit them for the production of stone fruit, and are particularly valuable in cases of gumming, where lime is not always effectual, through, I apprehend, a deficiency of soluble silica. Loamy marl is perhaps the most suitable soil for fruit trees, particularly of the stone kind, and ensures heavy crops with profitable returns for the manurial agents employed. Sandy marls are not suitable for fruit trees, though worked and darkened by manuring or humus they afford an excellent medium for early crops.

Calcareous soils vary greatly in nature and texture. When sandy they are too light, though not so liable to burn as silicious soils, and when clayey are cold and wet; but when a considerable quantity of clay and sand enters into their composition, as occurs when the chalk base is covered with a loamy deposit, the soil is fertile, and one that drought does not readily affect. Generally calcareous soils are or may be rendered available for fruit culture, particularly stone fruits.

The Apple, though it will thrive in many or most soils, succeeds best, lives longest, and produces the finest and most satisfactory crops on a good loam, substantial, inclining to clay rather than sand. In all cases the less the iron the better they will thrive. In hot soils the trees are subject to canker, and to die back at the points or extremities of the shoots; whilst in heavy cold soils they are similarly affected, though from anomaly of cause and otherwise become diseased, moss and lichen covered. Marly soils suit the Apple well, and soils that are not naturally calcareous are improved by an addition of marl—clay marl to hot sandy soils, and sandy marl to heavy soils.

Soils owe much of their suitability for special purposes to their depth. For the Apple it ought not to be less than 18 inches, with an equal thickness of yellow loam resting on gravel, which will render drainage unnecessary. It is imperative that water should not lodge nearer the surface than 3 feet, or it must be disposed of by efficient drainage, and the soil must be sufficiently porous to allow of the water passing through it and superfluity passing away by the natural or artificial drainage. If there be a pan, as not unfrequently occurs, between the ameliorated and under strata of the soil, it must be broken, than which nothing is better than trenching, but in no case bring up the bottom soil and bury the top soil. Merely trenching as deeply as the good soil extends is a fallacious proceeding, so far as relates to getting warmth, air, and moisture into it. Trees thrive well for a time under such conditions. They reach the fruiting stage, and then do not progress satisfactorily; the roots have passed into undisturbed soil when it was soft and moist, and in a dry hot summer they thrive amazingly, but only for a time, as the roots soon draw from it all its available moisture, and it becomes a compact dry mass, and remains so indefinitely; and the roots, enticed down by the moisture, having nothing to draw from, fail in the supply of sap when the demands are greatest; the trees show signs of the privation, the fruits being inadequately fed are inferior in size and quality. When the

stratum of under loam or pan is broken up the soil is more readily moistened than the compact mass, rain having free access among the loose particles, and the roots penetrate it freely. There is no danger of the natural soil being too rich, provided it be porous and efficiently drained. Deep soils are sometimes objectionable when loose and rich, but such do not occur very often naturally, and soils that are naturally porous to a depth of 3 feet obviously do not require moving beyond that required for tillage operations, as by loosening we increase the liability to luxuriance, and a shallow rich surface soil on a poor hard bottom is objectionable, as it tends to a luxuriance in moist periods which cannot be sustained in dry. A deep rich soil may not induce over-luxuriance through the favourable conditions in which the roots are placed when once the trees come into bearing, and it is a point of some consequence to get the trees away quickly, so that they may make the necessary growth for fruit production, and sustain it afterwards, so that a good soil well loosened is absolutely essential.

Trenching is an operation very little practised in fruit gardens and less in orchards, or rather where fruit trees are intended to be planted. It is considered unnecessary, a hole merely being formed and a tree stuck in. Except where the soil is naturally of a porous nature to a good depth and naturally rich, fruit never will be satisfactorily grown. Were the soil properly stirred in the first instance larger trees, and more as well as finer fruit, will be had in ten years than will be the case in twenty years where it has been neglected. Over-luxuriance is not to be encouraged, but promote a healthy vigorous growth. It follows that a tree making twice the quantity of wood and foliage that another tree produces will attain to double the size, and will bear double the quantity of fruit; although it may not commence bearing so early, yet it will be always marked by greater and superior produce. Manuring, except in the case of poor soils, should be avoided, as obviously but a small portion of it can be needed in the case of standard trees, and in the case of dwarfs it may tend to over-luxuriance unless the soil be poor, when of course manure is essential to enable growth to be made, insuring of and sustaining early bearing. Some good compost will in most cases be desirable at planting, a barrowload or more to each tree, and this in a naturally fertile soil is all the manure required until the trees come into bearing, when it can be applied in accordance with existing exigencies, there being no fear of loss or damage, as solid matter can be put on in winter if that form is desirable, and artificials readily applied at any time, a combination of both being perhaps most desirable for the continued free production of foliage and fertility of the trees.

In wet, cold, and even shallow soils it has been a practice (immemorable for what is known to the contrary) to plant the trees in raised mounds. This plan answers admirably for a time, as it is obvious that when the roots extend beyond the mounds they will pass into the unsuitable strata in quest of moisture when it is deficient near the top, and the evil day is only put off, not prevented. Either the mounds must be extended as the roots extend, or why they should not strike into the unfavourable strata the mounds were made to prevent when they get beyond the mounds it is difficult to see, unless drainage has been had recourse to in the first instance, and the mounds are only intended to supply the trees with a more suitable rooting area and keep them from the disadvantages of a hitherto wet cold soil until it has been made drier by drainage and its surface ameliorated, and depth of soil increased by cultural operations. Then I raise no objection to planting in mounds where the soil is wet or cold, but in any case the causes that make it both must be promptly rectified, and it is a question whether it would not be better to first rid the soil of its cause or causes of unsuitability for fruit culture as testified by the mound planting, and the soil being made suitable high planting would not only be unnecessary but highly objectionable. There are cases when the mound-planting may be desirable from opposite cause—viz., when the soil is shallow and the trees liable to drought. It may seem paradoxical to make hills to retain moisture, but it is a fact that soil is absorbent and retentive proportionately to its depth, the constituents being the same, and that planting on hillocks renders fruit culture practical where it could not otherwise be attempted through insufficient depth of soil. The principal point is to add to the sides of the hillocks, as the roots extend, and by artificial waterings make good Nature's deficiencies; and it is remarkable that the base of these mounds is always more moist than the general or level ground, which, whether it be for the attractive power of the mounds or of the moisture that accumulates at the foot of eminences, it is certain moisture is secured to the extremities of the roots, when it matters little if the soil be dry near the stem.

When the surface inclines sharply, ridges formed transversely on the slope—each row of trees elevated on convex ridges with a sort of valley between—rain will be prevented running off when

it falls thick and fast for a brief period, as often happens in thunderstorms when the ground is parched, and accumulating in the valleys the strata beneath will be moistened, and thus supplied to the extremities of the roots, the effects will be felt at the extremities of the shoots; they will not perish or become stunted as in a dry parched soil, the foliage will be kept fresh and the fruit better fed.—G. ABBEY.

(To be continued.)

TOMATO DISEASE.

A SHORT time since an article was contributed by Mr. Bardney on "Tomato Disease, its Cause and Prevention," and having, like hundreds of other large and small growers, been greatly inconvenienced by the attacks of this disease during the past season or two, the heading rivetted attention at once. In my eagerness to grasp the treatment of the leaf fungus, the first portion of the subject treating on root-clubbing was passed over lightly, but I must confess I was disappointed in the advice given by so able an exponent, and my exception is not a solitary one, for I have inquired the opinion of other and greater authorities than myself, who expressed a similar view. Several causes are assigned for the attack, but I think there is some doubt as to the efficacy of the remedies advanced. To strengthen my view of this argument, I would ask Mr. Bardney the reason why the large Channel Islands and other market growers who make them so great a speciality, should be so baffled in their attempts to check and overcome its virulent attacks? I am told some have given up their culture for a season or two in order to try and rid themselves of the foe, and then only, with partial success.

Mr. Bardney says it can and must be stopped at once, for it soon communicates itself to healthy plants if the treatment is not changed and a remedy applied. Sulphur is the remedy advocated, applied in the form of solution, made by mixing a 4-inch potful in three or four gallons of water, previously removing any infested leaves or stems. If so simple an application is a remedy, it appears strange that it should prove so dreaded and formidable a disease, and it is certain if it were effectual at Norris Green it is not so with many growers.

I was privileged last spring to inspect what was to me one of the most remarkable examples of successful Tomato culture I have ever seen. The plants were growing in houses with the most complete system of ventilation, and under the care of a man of the best reputation as a painstaking and thoroughly practical gardener. They were grown for market purposes. On being interviewed in the autumn it transpired that fairly good profits were realised, but nothing like the returns were made that might have been had were it not for the Tomato disease. I feel sure that fluctuations of temperature to which your correspondent attaches so much importance could not have caused the failure in this instance.

Last year proved very variable as regards disease with Tomatoes indoors, for it was a common observation that in one garden no trouble was given, while in another in the same district, and perhaps closely adjoining, the crops were very light. A solid growth, built up without the aid of animal manure, will admittedly be less liable to the attack, and a warm but freely ventilated house will add another important provision in escaping disease; and even with these indispensable factors some untoward influence will sometimes interfere to thwart the energies alike of plants and cultivators. We have some strong plants which were growing, flowering, and setting fruits satisfactorily in pots in a mixed plant stove, and I have just discovered that the most forward are affected by the disease that attacks the fruits. They occupy positions where roof space is not otherwise utilised, some being on a shelf directly beneath the ventilator, and these were the earliest victims. But for the danger of extending the disease to summer crops I should remove them to other and more airy quarters. Probably a moist atmosphere combined with the heat contracted by the unusual brightness of the sun may to some extent account for it, and a slight shade now put on will command a more equable and, it is hoped, a more favourable temperature. I had hoped so important a topic would have "drawn out" additional information, and I fear my views and remarks on the subject are crude, as my chances of gaining practical knowledge are not so favourable as I could wish.—W. S.

FRUIT PROSPECTS.

THE promise of Apples here is good on the whole. Peasgood's Nonesuch has the least fruit buds, and Ecklinville Seedling, Stirling Castle, Potts' Seedling, Worcester Pearmain, Mother Apple, Ribston Pippin, Cox's Orange, Margil, and King of the Pippins are very promising. Other varieties have quite sufficient bloom buds to produce a very fair crop. Pears in the open are with one exception (Marie Louise d'Uccle) a failure, as they have not recovered from the caterpillar plague of last year. Evidently it takes them longer to regain their strength than Apples. Plums promise a fair crop, in fact plenty of fruit, as a moderate amount of blossom is much better in my opinion than a great quantity. Our collection of Plums is large, and all appear satisfactory. Birds took a special fancy to Black Diamond, and took nearly all the fruit buds. Victorias and others have not been interfered with to any extent. Cherries on walls are full of blossom. Peaches and Nectarines are now a mass of flowers, and so far I think they are uninjured by frost. Apricots an average promise, and the blooms are

setting well. I should mention that Pears on the walls are showing more blossom than usual, Marie Louise, Flemish Beauty, Baronne de Mello, and Beurré d'Amanlis having the most fruit buds. The outlook is decidedly encouraging, and through our efforts the insect pests are nothing like so bad as last year. We find that the season is earlier by about three weeks than last year, most of the trees being from sixteen to twenty-three days earlier by referring to notes made each season as trees expand their flowers.—S. T. WRIGHT, *Glewston Court Gardens, Ross.*

As readers are invited to send observations respecting the promise of fruit this season from various localities I gladly send a few notes. In



FIG. 46.—NARCISSUS POETICUS (see page 321).

the first place I venture to predict that few readers of the Journal will be able to fix in their minds the latitude and longitude of the little village usually called "The Bank" (Astwood Bank), which has always been noted for its intense interest in horticultural pursuits, and especially in its annual flower show, so much so that at a recent gathering a leading exhibitor from a distance declared that the Astwood Show was "the best in Worcestershire, Warwickshire, or any other shire of its class." The exhibitors consist chiefly of working amateur gardeners and well-to-do cottagers who are employed in the needle factories, and work their gardens and allotments morning and evening. The locality may briefly be fixed about midway between Worcester and Warwick east and west, and Birmingham and Evesham north and south. The situation is high, dry and exposed, particularly to east and westerly winds, consequently late frosts are not, as a rule, so damaging as in low-lying districts, and there is usually a visible difference in vegetation of nearly a fortnight between Evesham and Astwood, although only a little over a dozen miles apart. On a visit to Evesham last week it was

noticed that the Plum trees in favoured spots were as white as snow with blossom, while a week later the Astwood trees are not yet open, and fortunately too from the reports of the frost, which are very discouraging.

Apricots are much damaged by the late frosts, and most of the blossom has failed to set, except such as happened to touch the walls, which appear to have retained sufficient warmth from the sun in the day to protect the young fruit, a circumstance that may well be noted—to nail-in close.

Plums on walls are not as well flowered as usual. In the open, as also Damsons, a fair bloom was promised, but the hullfinches, in spite of all my efforts, nearly cleared the trees. Most of the damage was done in one week, when the influenza was responsible for me not being able to use the gun. Over fifty were caught, and a few shot. There is this redeeming feature about the loss of fruit—I turned most of the birds into money by selling somewhere about 25s. worth, besides keeping a few beauties for cages.

Apple and Pear trees show a promising number of flower buds, but besides being forward and liable to damage later on from frosts we have an unusual quantity of enemies to hattle with. The caterpillars of the winter moths are fast hatching out on neglected trees, aphides are unusually plentiful for this season of the year, red spider is likely to be enormously represented, as mere boughs are literally red over with eggs in some cases. Here is also another insect fast hatching, the name of which I am not sure about, but believe it is spelt "Cherino" or Pysilla (?). The crops I fear will be dearly bought by the attention and materials required to do battle with such an army as confronts us. I have some thousands of caterpillars hatched out in pound glass honey jars for experimenting with.

Gooseberry trees are almost stripped of fruit buds by sparrows and bullfinches, in spite of syringing with petroleum and dusting with lime and soot. Currant bushes not much harmed.

As a determined precaution against insect enemies I am placing some of the smaller Apple trees in a bath composed of lime, cow-dung, and clay, with a little petroleum and softsoap well dissolved and thoroughly mixed in the compound. By using two brushes (one in each hand as a support) it is not so formidable an operation as may at first glance seem. This effectually shuts up caterpillars and eggs, red spider, scale, aphides, American blight if any, and a host of other minute pests visible with the microscope. The buds open out of the mixture clear and free from pests.—J. HIAM, *Astwood Bank, Worcestershire.*

OUR garden is situated about $4\frac{1}{2}$ miles from the river Humber, and is probably about 80 feet above high water level. The soil is a light sandy loam overlying red sand. Nearly the whole of the fruit trees have been planted during the last twenty years, and thrive fairly well.

The following is a summary of the prospect of fruit with us. Apricots on south-east aspect plenty of bloom and apparently an average crop set. Apples—Cox's Orange Pippin on dwarf trees, full; Ribston Pippin, medium; Lord Nelson Codlin, full; this variety does remarkably well here, and is a long way before Keswick Codlin as a market Apple, but does not produce such handsome fruits as Lord Suffield, which, as well as the Keswick, are very promising. Warner's King on trees about nine years planted are showing well, as is also Stirling Castle. Several other varieties are only medium this season. Of Pears, Jargonelle on the wall is full of flower trusses just ready to expand; Louise Bonne of Jersey, very full of buds on pyramid trees; Durondeau does well here in most seasons and is again very promising. We have a tree of Winter Nelis on a wall which covers a space about 18 feet by 12, which will soon be a fine sight, aspect south. Williams' Bon Chrétien are very full on bush trees. A large old Hesse Pear tree has very little blossom showing, whilst on the other hand a large old tree of the Green Chisel is full of buds; this tree is more admired for its fine appearance than its fruit.

Plums were a heavy crop here last year, but there is only a small show of blossom this; Victoria, Dennison's, Rivers' Early, Pond's Seedling, and one or two other varieties are the best on the walls. Nearly all varieties in the open very thin. Peaches, plenty of blossom fully expanded, but I fear will be injured, as we had from 4° to 6° of frost every night last week. Cherries, both dessert and Morellos, are showing plenty of bloom, as also are Siberian Crabs. Gooseberries have suffered more from hullfinches this winter than for several years past. Black Currants are showing a fair amount of bloom where they are tolerably clear of the mite, which is more the exception than the rule in this locality.—W. W., *Brough, East Yorks.*

GARDEN PRIMROSES FOR SPRING BEDDING.

As spring flowering plants these have few rivals for filling flower beds during the winter and spring, and although such conspicuous masses as given in Myosotis, Silenes, and Wallflowers are wanting, they are none the less appreciated. From a packet of seed a great many plants may be secured, and, like some other among florists' flowers, scarcely two will be found alike, which makes them all the more interesting. They are hardy and precocious, as only severe frosts will cause a break in the display, which is again resumed immediately on the change of weather. Seeds may be sown during the next two months, choosing a shady aspect, having a fine and rich soil. For the convenience of bedding and securing a maximum amount of bloom, there is a decided advantage in sowing the seeds at once, and treating them

similarly to other annual seeds which are sown in spring for the summer and autumn display.

Thinly scattered on a finely prepared soil in an ordinary Pelargonium box, they may remain until ready for transplanting to a shady spot outdoors, and if a supply of water be given them with an occasional sewage application, the growth will be strengthened and the plants of large size by the time they are required for filling the beds in autumn. The foregoing remarks are quite applicable to Polyanthus, which perhaps will make the holder display of the two, and are by some preferred in consequence to the Primrose. Both are equally desirable, and each repays for a liberal diet. Primroses from seed sown early and carefully grown will have buds plentifully formed by the autumn, which will continue to open all the winter according as the weather allows; but it is in April and May when they assume their greatest beauty, for then they become a mass of colour in great diversity. Polyanthus do not bloom so early, but this is made up in greater splendour, the spikes rising well above the leaves, forming complete hushes of bloom. These qualities do not appear to be sufficiently recognised, and their claims for spring displays cannot be too strongly urged.

Their removal to make room for the summer occupants of the beds is a great disadvantage to them, happening as it does at a most busy period. They should be replanted immediately, and if possible in a position shaded by lofty walls or trees. In the absence of this, a light covering of strawy material would serve to preserve them from the



FIG. 47.—ONE OF DEAN HERBERT'S HYBRID NARCISSI (see page 321)

scorching rays of the sun. With this attention plants will retain energy sufficient to be of service for bedding two or three years, but even then it is prudent and interesting to raise a fresh stock each or every alternate year. Permanently planted in shrubbery borders, by woodland walks, or any such places, they form an agreeable brightness to the general surroundings in the spring.—W. S.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

THE Committee of the British Fruit Growers' Association recently held a meeting in the Horticultural Club Room Hotel Windsor, Victoria Street, S.W., T. F. Rivers, Esq., in the chair. The minutes of the previous meeting were read and signed; a number of new members were also elected. The Hon. Secretary, Mr. Lewis Castle, reported that the Ellesmere meeting and lecture had proved most successful. Mr. Brownlow R. C. Tower, the Secretary of the local Society, wrote to the effect, "You will be glad to hear that we had an excellent meeting here on Saturday night, a very attentive, intelligent audience of gentlemen, farmers, tradesmen, cottagers, &c., filled the Town Hall. Mr. Wright's lecture was much appreciated, as also were the remarks of Mr. Baillie and Mr. Bunyard. At present I think we have done all we can in the way of 'setting the ball rolling' in this district. In the autumn perhaps we may get up some cottage lectures. I am sure we are all much indebted to the Association for the helping hand they have given us all. I doubt not good will result eventually." Mr. Baillie also wrote in similar terms. He said, "A splendid gathering of deeply interested people, and an eagerness and 'go' about the whole thing. Plenty of enthusiasm without exaggeration, and lots of force but no 'fads.'" The Chairman remarked that the result was very satisfactory, and there was ample scope for the work the Association had undertaken to perform in this direction—namely, organising meetings and providing

lectures in country districts. He remarked also that it would be desirable to make it known that all applications should be sent to Mr. L. Castle, Hotham House, Merton, Surrey. Hearty votes of thanks were accorded to Mr. Brownlow Tower for the trouble he had taken in arranging for the meeting, to Mr. J. Wright for his excellent lecture, and to Messrs. Baillie and Bunyard for attending and assisting.

The Secretary also reported that favourable replies had been received from the gentlemen proposed at the previous meeting as Local Secretaries throughout Great Britain and Ireland, and many encouraging suggestions were made showing the deep interest being taken in the work of the Association and the general approval of the programme adopted. Letters were also read from several societies and gentlemen proposing that meetings and lectures shall be held in their districts, which were referred to the Secretary for arrangement. The programmes for the June and August meetings were considered and advanced a stage, and will shortly be ready for publication.



THE WORKSOP ROSE AND HORTICULTURAL SOCIETY.

A SOCIETY has been formed under the presidency of His Grace the Duke of Portland, and with Henry Vessey Machin, Esq., J.P., as vice-President, to encourage the cultivation of Roses and other flowers, fruits and vegetables in Worksop and the surrounding district. It is intended to hold a Show annually in the month of July, when a thoroughly representative collection of the national flower may be looked for—several of the leading growers in the country having promised to exhibit—and when it is hoped to bring together a good display of fruit and other garden produce. The terms of membership are:—For amateurs employing one or more professional gardeners permanently, payment of £1 ls. or upwards. For amateurs cultivating their own gardens or employing occasional labour only, payment of 5s. or upwards. For cottagers, payment of 1s. or upwards. The above subscriptions giving the right to compete for any of the prizes assigned to the members' class, without further payment by way of entrance fee or otherwise, and also giving certain tickets for admission on the show day. Mr. George Baxter is the Hon. Sec.

ROSE LAMARQUE.

IT would be difficult to find a better white Rose than this variety for flowering during March and April in the greenhouse. Seldom do we see this old variety cultivated as its merits deserve, when the rapid growth it will make under favourable conditions and the freedom with which it will flower are taken into consideration. In the bud and half-expanded state the blooms are seen at their best, in contrast with the dark green foliage with which this Rose is so well furnished. When the blooms are fully developed the centre of each exposes a faint tinge of yellow in the petals which somewhat spoils its appearance. Lamarque is easily increased from cuttings taken in a half-ripened state with a heel attached about the middle of April. Dibbled into sandy soil, plunging the pots in a gentle bottom heat, the cuttings will quickly make roots, and when growth is established numerous stout sucker-like shoots will burst from the main stems growing from 3 to 6 feet long in one season. From the eyes belonging to stout growths numerous side buds will start and produce from one to five blooms at the points. Such growths as I have described should be encouraged and allowed to grow without check. This variety is not so liable to be pestered with either green fly or mildew as some others, a point in its favour.—E. M.

ROSE CATALOGUE COMMENTARY.

UNDER the impression, I hope an incorrect one, that Mr. Raillem's Rose commentary has come to an end, I write to express my own feeling, and that, I am sure, of many others, of regret that it should be so, and of hope that it will be published separately. Many have been looking for it from week to week with the greatest interest. The criticisms, so far as I could judge, have been most admirable. It will make a little book, which persons beginning to exhibit should make a point of getting, and is full of advice valuable also for old stagers.—A. C.

THE SPARROW PEST.

YOUR correspondent "B.," page 300, asks, Is there any way to keep down sparrows? Yes, there are several ways of doing so—trapping, shooting, and destroying the nests; but to poison them is not advisable. I have no great antipathy to sparrows, as though they are numerous with us I am not able to lay any great damage to their account. They never, as with "B.," trouble our Currants or Strawberries. They were this year for the first time rather hard on my November-sown Peas, but it was because I had neglected to put a few strands of small twine over them, and the weather was harsh at the time, but as I had some ready to transplant I soon made good the damage done. They seldom interfere with my Peas when in bearing. The worst damage they do is to

destroy the flowers of the bedding Primroses and Polyanthus, for which I have to hang up swinging bright coloured pieces of rag—red and blue, &c., and which seem to answer the purpose very well as a scare. In the winter season many persons, as an act of seasonable kindness, feed sparrows with bread crumbs and house refuse, thus keeping them in the vicinity all the year round, and when the house supply stops they pay the gardener a visit, who has to deal with them as best he can. Of course it is always necessary to net small birds.

Your correspondent "W. T.," page 301, under the heading "Birds and Fruit Trees," complains of the numerous sparrows and tom-tits. I feel sure in many cases both sparrows and tom-tits are blamed for the mischief done by the bullfinch. Only on Friday last, 11th inst., I was on the look out for bullfinches with a gun in my hand, and came close to some titmice at work in Apple trees, and how daintily they were sorting over the partially expanded trusses of bloom for caterpillars. I saw two or three varieties of them at the same work, but in no case could I see that they had damaged the blossom bud, but I noticed in some cases they pulled out some of the small leaves surrounding the flower truss. Birds of all kinds with us are very numerous, but as I have a liberal supply of netting I only destroy bullfinches, as nearly all the other varieties at some season of the year do good to garden crops.—R. MAHER, Yattendon Court.

YOUR correspondent "B." should get a bird net, commonly used at night, with a lantern at the end of the purse. The body of the net is attached to two long poles, which when open will cover 6 to 8 feet.

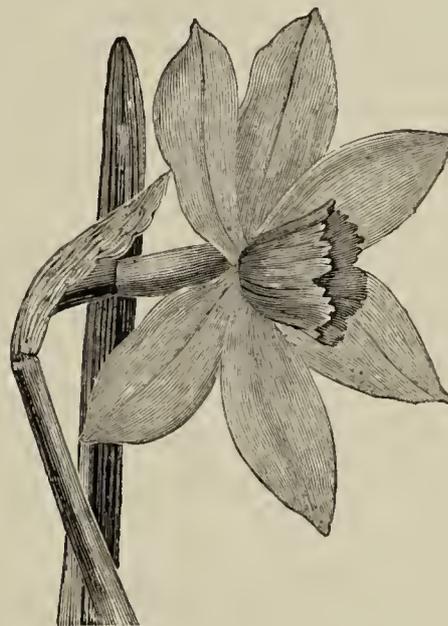
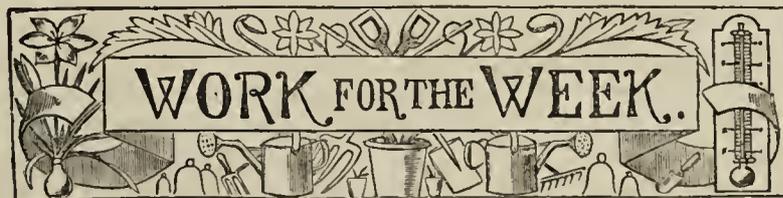


FIG. 48.—ONE OF DEAN HERBERT'S HYBRID NARCISSI (see page 321).

Spread this gently over Ivy on walls, hayricks, or thatched buildings or old hovels or sheds with a pigeon hole in, and by moving gently from place to place in the dark he will soon clear himself of the sparrows. I have caught fifty at a draw, taking them out at the end of the purse where the light is attached.—T. H. R.



FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest Forced House.*—Continue syringing until the fruit commences to soften, as it will during the late stages of ripening, and if syringing is persisted in it will cause the fruit to crack in the skin, and if only slightly it will give the fruit a very unpleasant mouldy flavour. It is very important, therefore, to have the trees quite clean by the time the syringing ceases, as it must when the fruit commences ripening. If there be the least trace of red spider apply an insecticide, repeating it so as to thoroughly free the trees of the pest. It is only the very early varieties, such as Alexander and Early Beatrice, that will be ripening; the others must be well syringed, and have abundant supplies of water with good surface mulchings. Raise the fruits with the apex to the light, shortening or drawing the leaves aside, so as to let the fruit have the full benefit of the sun for colouring.

Second Early Forcing House.—Trees started at the new year are not so advanced as usual, being much retarded by the cold. They are now

stoning, and will need care in preventing checks from sudden fluctuation or depression of temperature, the night temperature being kept steady at 60°, with 5° more on mild nights, whilst on cold nights it may fall to 55° in the morning, 65° by day artificially in dull weather, 70° to 75° on cloudy days, but with clear intervals ventilating from 70°, and freely above 75°. Attend to tying in the growths as they advance, and encourage no more than will be required for future bearing, the extension of the trees, and for the swelling of the current crop. See that there is no lack of moisture in the borders, affording liquid manure if the trees are heavily cropped and not making satisfactory growth, but avoid undue excitement to trees in full vigour, as any impulse given to growth during the stoning is apt to affect the process disastrously. Syringe twice a day so as to keep the foliage clean.

Trees Started in February.—When the fruits are the size of horse beans thin them well, removing the smallest and those on the under side of the shoots, leaving sufficient for the crop, those that are best situated for receiving light and air. Disbudding must not be neglected, and heeling in shoots required for next year's bearing must be carefully done. Syringe twice a day, the second syringing at closing time or early in the afternoon, so as to have the foliage dry before night, increasing the temperature to 55° or 60° at night, 60° to 65° by day, ventilating from the latter, and increasing it with the sun heat to 70° or 75°.

Trees Started in March.—Too many fruits have set in most cases, where they have not it may be traced to over-luxuriance or to immaturity of wood and imperfect development of huds. An over-set is a source of great weakness, and not infrequently causes the incipient fruit to be cast in showers, leaving but a scanty crop. There is no remedy but to well thin the flowers before they expand, not to dishud in quantity but gradually, and to thin the fruits so soon as it can be seen which are most promising by taking the lead. Syringe so as to assist the fruits in throwing off the remains of the blossom, and ventilate freely so as to insure sturdy, short-jointed, thoroughly solidified growth. A temperature of 50° to 55° will be sufficient, not allowing an advance above 65° without free ventilation.

Late Houses.—Attend to fertilising the flowers. There ought not to be anything neglected that is likely to insure the perfect fertilisation of the blossom, as without it the fruit cannot attain perfection. Split stones and disaster in stoning are in a measure due to neglect of attention at flowering. Secure a temperature of 50° by day and ventilate freely, allowing an advance to 65° from sun heat. Leave a little air on constantly. As there is a superabundance of blossom thin it well, first from the under side of the trellis, and where much crowded.

In unheated houses observe 50° as the point for admitting air, and 65° as a maximum from sun heat without full ventilation, but there must not be an advance above it without a full circulation of air. Water must be afforded so as to maintain the soil in a thoroughly moist state, supplying liquid manure to weakly trees. The blossom being abundant should be well thinned.

Figs.—Earliest Forced Trees in Pots.—Early Violet and Early Prolific, though small, are desirable from affording fruit in advance of the large-fruited varieties. The fruit showing signs of ripening, watering must be gradually reduced, and syringing must cease, but those swelling the fruit should be assisted with liquid manure twice a week, syringing the trees at closing time. A circulation of warm air, rather dry, should be secured when the fruit is ripening. A temperature of 60° to 65° at night, 70° to 75° by day, advancing to 80° or 85° from sun heat, is suitable, closing so as to increase to 90°, but air must be afterwards admitted so as to allow the pent-up moisture to escape and prevent the deposition of moisture on the fruit, which settling on the apex is apt to cause its decay.

Early Forced Planted-out Trees.—Mullehng with 2 or 3 inches thickness of short manure is essential to the encouragement of surface roots. This, if kept in a moist state, will be full of active feeders by the time the trees need the most assistance in order to perfect their crops. Trees in borders of limited extent should be well supplied with water or liquid manure as necessary. Syringe twice a day. Ventilate freely in favourable weather, which will secure stout growth and leathery healthy foliage. No fruit is more benefited by the full rays of the sun than the Fig. Any kind of shading, whether by other plants or too much of their own foliage, is injurious and must be strictly guarded against by pinching out the young growths in the late houses and thinning out all the overcrowded shoots. The temperature should be maintained at 60° to 65° at night, 70° to 75° by day, advancing to 80° or 85° from sun heat.

Succession Houses.—Tying-in, thinning, and regulating the terminal shoots must have attention, stopping the spurs at the fourth or fifth leaf, and the laterals from these at the first or second leaf. Mulch the borders with short manure if not already done. Maintain the night temperature at 55° to 60°, 65° by day artificially, 70° to 75° from sun heat, which ought not to be exceeded without full ventilation, as it is very important the growth be stout and the foliage have good substance. When the trees are in full leaf the night temperature should be maintained at 60° to 65°, and 70° by day, allowing it to rise to 80° or 85° from sun heat, closing early with plenty of moisture.

Unheated Houses.—The trees must have attention in pruning, thinning the least fruitful growths and the old and bare, avoiding overcrowding, as it is necessary the growths have abundance of light and air. Allow the shoots for bearing to grow somewhat loosely with their points up to the light. Stopping must play an important part in cool houses. Pinch at the third or fourth joint on the young wood, which

will assist the swelling of the fruit and induce the trees to break and produce short-jointed wood from the base of those in bearing. Ventilate freely at and above 50°, advancing to 65° from sun heat. The border should have a thorough watering if dry, repeating as necessary to bring it into a thoroughly moist state, afterwards mulch with short manure. Figs in unheated houses do not require nearly so much atmospheric moisture as those grown in artificial heat, but an occasional damping will be necessary to maintain a genial condition of the atmosphere.

KITCHEN GARDEN.

KIDNEY BEANS.—A small sowing of both the Dwarf and Runner varieties may now be made. A cold, wet, heavy soil does not suit them at this season. The seed will perish in such, and must therefore be sown in somewhat light material. A sunny position is also advantageous. The earliest and most prolific crop of Dwarf Beans we are able to secure is supplied from seed sown on the ridges between Celery trenches. The elevated position seems to suit them better than any other, but in cold backward districts they may be sown at the foot of a south wall. In very cold localities the seed may be sown under frames, but in the ground to produce a first crop.

SAVOYS.—It is a common mistake to sow Savoy seed too early. When the plants heart in September they are far past their best by December, and that is the proper season for Savoys to be gaining their prime. Growers have the choice of three types—the large or Drumhead, the Globe or medium, and the Tom Thumb class. The Globe is the most desirable as a main crop. The heads are very firm, an important point, and their quality is good. The present, or from now until the first week in May, is a suitable time to sow the seed. It is often sown too thickly; crowding of the plants at first, or at any time, is an evil to be avoided.

LATE POTATOES.—Potato planting should be finished as soon as possible; compact growing varieties are best for gardens. Large tubers may be cut into two or more pieces, but unless in the case of choice and scarce varieties do not attempt to reduce them to a single eye. The ground should be moderately rich and dry at planting time. Artificial manures do not produce heavier crops or finer quality than farmyard manure, but the former is less disposed to force a large top growth. To use a large quantity of both is extravagant.

BETROOT.—This is another crop of a somewhat tender nature. Seed should not be sown until after the middle of April. Large roots should be avoided. A perfect Beet can be spanned with the hand, and no attempt should be made to have them larger. Do not therefore sow in very rich soil, but let it be free and open and void of long manure. Sow in rows 1 foot to 15 inches apart, and in drills 3 inches deep.

LETTUCES.—To have Lettuces in the best condition, sow sufficient seed once a fortnight to give a supply that will meet the demand for a period of about that length. This fortnightly sowing should be begun at once. Lettuce raised in frames and under protection may be planted in the open ground. Our best Lettuce are invariably produced on the ridges between the Celery trenches. They gain a size there without any further attention after planting. We frequently make our Celery trenches in advance of the time they are wanted to secure ridges for Lettuce.

EARLY CELERY.—Plants in boxes and frames are rather too tender to plant out before the 1st of May, but they should be gradually hardened with the view of having them ready by that time. Do not on any account allow them to suffer by want of water. Give them liquid manure if they are backward.

THINNING VEGETABLES.—Parsnips, Carrots, &c., will soon require this attention. Begin as soon as they can be handled, but only thin them to 1 or 2 inches apart the first time. This will insure sturdy growth, and they can be thinned more later on as they require space, but it is harmful to neglect them at first. After thinning, run the Dutch hoe rather deeply between the rows to loosen the ground, that the rain may penetrate freely and not run off the surface.

HERBS.—Mint is now plentiful in the open. Do not hesitate to cut it freely, as this will induce the stem that remains to branch out into numerous shoots. Sage and Thyme are readily raised from seed, and may be sown forthwith. The seeds are small and must have a fine soil on the surface. This applies especially to Thyme. Fork and manure the ground well. A small bed will be sufficient, as the seedlings should be transplanted the second year, and may be grown closely the first. Sweet Basil is frequently in demand. It requires to be sown and grown under glass, but a pinch of seed may be sown in a 6-inch pot, and the plants transferred to a frame or boxes when 2 or 3 inches high.

MISCELLANEOUS.—Earth up recently planted Cauliflowers; draw the soil well to the collars. Peas and Broad Beans may be treated in the same way. Stake Peas before they fall over. Do not put tall stakes to dwarf varieties. Pot Vegetable Marrows and ridge Cucumbers singly in 4-inch or 5-inch pots. Give them treatment that will cause them to be strong, healthy plants by the middle of May. Pot Capsicums in rich material. Keep them in a warm atmosphere, and syringe them frequently.

PLANT HOUSES.

Gardenias.—Where hushy plants with three or more flowers are appreciated for decoration, insert strong cuttings singly in small pots at once. Cuttings of soft wood root quickly if shaded from the sun and kept moist in brisk heat in the propagating frame. Young stock

in from 3 to 5-inch pots may be placed into larger pots as they require more root room. Old plants that have flowered and are rather straggling may be well cut in and started again into growth in brisk heat. If these plants are infested with mealy bug or scale clean them thoroughly, and then give gentle bottom heat to push them into growth. Gardenias do well in a mixture of loam and peat in equal proportions with the addition of sand; leaf mould may be substituted for the peat. They will do equally satisfactorily in good fibry loam, one-seventh of manure and sand. Water carefully until the roots are working freely. The syringe may be used twice daily.

Eucharis.—Plants that have been potted should be watered with care. If the pots are plunged little water will be needed until the roots are forming freely if the foliage is well syringed two or three times daily. Maintain a moist atmosphere about the plants, and shade them from bright sunshine. They soon recover from the potting if they are carefully treated in this respect. Make up a few pots of the young huls for the purpose of superseding old ones that become exhausted. To keep a healthy stock of plants over a lengthened period of time it is a mistake to retain only strong flowering huls.

Medinilla magnifica.—This may now be placed in a shady part of the stove to make its growth. It advances rapidly in heat and moisture, and soon attains a sufficiently large size to be very striking when well flowered. Its long racemes of pink flowers are highly attractive. This plant does well in a compost of fibry loam, one-seventh of manure, and sand. It is very liable to mealy bug and thrips; both soon injure its foliage if allowed to become established upon the plant. It is difficult to eradicate the former without injury to the leaves near their axils. The thrips can be kept in check by fumigations with tobacco smoke and a liberal use of the syringe. During the season of growth liberal supplies of water are necessary.

Tydas.—Such varieties as Madame Heine that are evergreen and do not make underground stems will have produced plenty of cuttings, which should be rooted in pans. These strike freely in the propagating frame in sandy soil. The cuttings may be allowed to grow together in the pans until they have attained strength, when the heads may be taken off and rooted singly in small pots. These will be early enough for next season's flowering. The old plants can be thrown away as well as those in the pans afterwards. If good sized plants are needed in preference to a quantity in 8-inch pots the cuttings inserted now may be placed singly in small pots and grown on. The shoots should be pinched from time to time to induce them to branch.

Acalyphas.—The heads of plants that have grown tall may be taken off and rooted in small pots. They root freely in the propagating frame. Directly they are well rooted carefully harden and grow them in an intermediate temperature. In brisk heat they soon run up tall and do not colour well. If good heads are rooted and the plants placed in 5-inch pots the lower leaves will droop gracefully, and colour beautifully if exposed to the sun. During the summer months a few plants are handsome in the conservatory. To increase the stock the old plants should be retained, for they will soon produce side shoots in heat.

Cyanophyllum magnificum.—When well grown this is a beautiful foliage plant, and where stove foliage plants are appreciated it should find a place however limited the collection. To do it well liberal root room is necessary in a young state. It should never be allowed to suffer by the want of root room until it has been placed into 10-inch pots, which are large enough to grow excellent plants in with large hold foliage. It delights in heat and moisture and a shady position. Young plants should be potted on in a compost of fibry peat and loam in equal proportions with the addition of sand and charcoal. It grows well in any light open compost, and leaf mould may be substituted for the peat. While growing liberal supplies of water are necessary, in fact at no season of the year should the soil about the roots become dry. Plants that have grown too tall may have the lead removed to induce it to make side shoots. When these are large enough they may be taken off and rooted singly in small pots. They strike freely in sphagnum moss and sand in the propagating frame. They must be well shaded from the sun, and most carefully exposed to light and air after they are rooted. The under side of the leaves should be syringed freely to keep down thrips. If sponging has to be resorted to the foliage is soon damaged. *Sphaerogyne latifolia* requires similar treatment, and will succeed in a slightly heavier soil.

were provided with in autumn, the form of the hives and their coverings, and last, but not least, the weather so favourable for breeding and airing themselves without loss. The promoters of brood-spreading have fairly lost their case, and the beginner should note this and learn that although "the hand of the diligent maketh rich," and we must learn to be wise as well as diligent.

SWARMING.

Every year is adding more gardeners to the list of bee-keepers, and I believe the time is not far distant when it will be the rule and not the exception to see bees kept in every garden. One objection some have to keeping bees is their liability to swarm without being observed, to the chagrin and loss of the bee-keeper. It is a mistaken idea to suppose bees can be prevented swarming. All the phases of swarming and its prevention have been treated before. It is sufficient for the present article to say that bees will swarm from half full, two-thirds full, and more or less full hives, in spite of all the ekes that can be placed on or under them. I use every means to prevent swarming before the hives are crowded, but I am not able, nor ever will be able, at times to prevent it. During the honey gathering and swarming season bees should not be left without keeping a watch over them, at least between the hours of 8 A.M. and 4 P.M. If left to themselves bee-keepers must take the consequence of all losses.

I prefer natural to artificial swarming, but cannot advise every one to adopt the same course. I have advantages of closely attending my bees that others have not, and those I do advise to practise artificial swarming rather than run the risk of losing swarms, consequently all profit. The divisional hive, as it is in other respects, is superior for artificial swarming also.

The only caution necessary is not to attempt it before the hive is in a fit condition. Choose a fine day when the bees are at work, uncover the hive, and remove the slides after the top bars have had a slight rubbing with carbolic acid, then insert the carbolicised paper between each comb, no paper to be broader than will barely reach the bottom of two boxes, and have a pin or obstruction near the upper edge to prevent it dropping to the bottom box. The only use of the carbolicised paper in this case is to ensure the queen being in the under box. Now detach the two uppermost from the lower one, place the last upon one or more foundationed divisions, meanwhile withdrawing the papers from the first, and let it stand a short time to collect as many bees as will attend to the brood and raise royal cells. Immediately this is done remove it to a distance and place the portion with the queen and original stand on the old site. When combs are simply lifted from one hive to another that has not the odour of their own hive the bees do not take to it so kindly, and this is much, if not all, in making artificial swarms, and therein lies success.

It is generally the third or fourth week of June before supers can be placed on hives with anything like certainty of getting them filled quickly and without interruption, and finished in a manner that they may be presentable to the most fastidious. Now that our hives are so far advanced it would be extreme folly to attempt to delay or prevent swarming. Early swarming gives us three instead of only one honey gathering hive, and sufficient queens to supersede those that have laid since January, and for the next year. Young and fertile queens is the key to successful bee-keeping if appliances are in accordance with what the nature of the bee and skilful management demand.—A LANARKSHIRE BEE-KEEPER.

THE BEE-KEEPER.

NOTES ON BEES.

Up to the 5th April the bees have had six days' work without interruption, and gathered honey from the fruit blossoms, and are in many cases in a fit state for it, and for swarming. Never in any season have I seen them so far advanced, a marked contrast to the same time in 1889.

That bees are so well conditioned without either brood-spreading or stimulative feeding is entirely due to the abundant stores they

TRADE CATALOGUES RECEIVED.

Bruant, Poitiers, Vienne, France.—*General Catalogue.*

Merryweather & Sons, 63, Long Acre, W.C.—*Catalogue of Fire Engines and Hydraulic Machinery, Hose, Fittings, &c. (illustrated).*

Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.—*General Catalogue.*

Thomas Painter, Smallwood, near Scholar Green, Stoke-on-Trent.—*Catalogue of Dahlia Plants.*



TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Back Numbers (J. E. F.).—We know of no more likely way of your obtaining a purchaser than by advertising, or making your desire known at gardeners' meetings if there are any in your district.

Figs (F. Cantab.).—The White Marseilles is the earliest you name. There is no material difference in the time of ripening of the others. For market purposes we should rely mainly on the Brown Turkey.

Primroses and Polyanthus (E. Wollen).—The flowers you have sent are highly attractive, and may be described as good border varieties well grown, a credit to the seedsman and cultivator.

Horticultural Shows (F. Callender).—No complete lists of flower and fruit shows to be held in Great Britain are published for sale. Most of the leading shows are advertised periodically, and lists of special shows are published occasionally in this Journal. You would perhaps see the dates of Rose shows on page 298 last week.

Cropping Vines (Anxious).—You may as well ask us what weight a horse will draw up a hill without indicating the age or condition of the animal, or the character of the incline, as expect us to answer your question satisfactorily. If you will state the age of the Vines, the strength of the laterals, the size and texture of the leaves when developed, and the length of the rafters we shall have data whereon to base a reply.

Agathæa coelestis (C. W., Wales).—The above is the name of the blue flower you have sent, and is fancifully known as the Blue Marguerite. It grows and flowers freely in loamy soil in a very light position in a greenhouse, also when planted out in good soil in an open position in the garden at the same time that Heliotropes and other tender plants are "bedded out." Cuttings of the young shoots strike readily in moist sandy soil in a close heated frame, or under a bellglass in a warm greenhouse.

Glonera jasminiflora (Idem).—This plant, which is also known as Psychotria jasminiflora, is a member of the large family Rubiaceæ, and is a native of Brazil. It requires to be grown in an open soil of peat and loam and needs a stove temperature. It will, however, succeed in any moderately warm house during the summer months.

Pegging Down Roses (Inquirer).—If the plants have been established for at least a year where they are growing the long shoots may be "pinned down," as you propose, and the weaker cut back if you desire the greatest number of flowers for decorative purposes, and not a limited number of exhibition blooms; but if the Roses have only been recently planted, or last autumn, it would be very inadvisable to retain the long shoots, and it would be better to cut them back somewhat severely, the young growths notwithstanding.

House Sewage for Strawberries (F. J.).—The liquid which you describe as principally kitchen slops, including we presume soap-suds, may be applied without dilution to Strawberries that need assistance, though it might make strong young plants in rich soil grow too luxuriantly, producing a finer crop of foliage than fruit. It may also be given to fruit trees that do not make sufficient growth and the soil is well drained naturally or artificially.

Superphosphate of Lime for Fruit Trees (Idem).—You ask "if a good superphosphate is as good a manure as can be used, or if we know of a better mixture for a fruit garden?" We have often published what we consider better mixtures for the purpose, but if your land contains a sufficiency of potash the superphosphate may answer your purpose, as it will supply lime with phosphoric and sulphuric acids, and these are what fruit trees and most crops require, but most of them require potash also, and some must have it or they will not thrive. It can be applied in the form of kainit, which is the cheapest form, or saltpetre, which is the dearest, but the most active, as it also contains nitrogen.

Seedling Briars (A. W.).—Where the buds have "taken" the Briar stems may be shortened, say to a foot, and all the buds picked out of them; the Rose growths can then be secured to the stems, otherwise they might be broken by the wind. You can cut the stems down to the buds if you prefer to insert sticks for supporting the growths. We have often inserted dormant buds at this season of the year, and they have

grown satisfactorily; if they fail others of this year's growth are inserted as soon as ready.

Tomatoes Diseased (H. E.).—Wednesday morning's letters cannot be fully answered in the current issue. You do not say whether the fruit or leaves are attacked. Keep the house drier and freely ventilated, and apply sulphur, sulphide of potassium, Fowler's or Ewing's mildew composition, as may be most readily obtainable. Your other question cannot be answered this week.

Lily of the Valley Failing (Dutchly).—Failures similar to yours are not uncommon when Dutch crowns have been relied on for early forcing. The variety is evidently not suitable for the purpose. We do not suggest there are no varieties grown in Holland that will not force, but it is well known that, as a rule, Dutch are inferior to Berlin crowns, also to many grown in England, for the production of early flowers with the aid of brisk artificial heat. The samples you have sent are probably the result of weak immature crowns, for strong and good examples usually flower very well at this season of the year.

Scale on Peaches—Cutting down Clematis (Inquirer).—The trees and house ought to have been much more thoroughly cleansed with something in addition to the solution of softsoap. Methylated spirit will destroy scale, but we must leave the best method of application for you to determine after applying a little to infested parts and noting its effect. The Clematis will grow freely if cut down after flowering, but there is no certainty that the growths will produce flowers next year. They must be thinly trained in order that they may ripen under the full influence of sun.

Nitrate of Soda for Apple Trees—Prunuses for Pots (J. M.).—Nitrate of soda alone is a very incomplete manure for Apple trees. It is certainly a growth stimulant, and we can quite conceive of its doing more harm than good to some trees. If you wish to try it in solution half an ounce to each gallon of water will suffice. We cannot tell you how often to apply it, nor can anyone usefully without knowing the condition of the trees. We have several to which we should not apply any if we had the salts as a gift. Two of the best Prunuses for flowering in pots are *P. sinensis flor. pleno* (double) and *P. pissardi*. This was illustrated in the *Journal of Horticulture* a fortnight ago.

Fine Double-spathed Richardia (A. MacKenzie).—We have had many specimens of the same character as yours, and some very fine, but we think yours is the premier. The largest spathe is 1 foot long and 6½ inches wide, the other 9 inches long, both measured from the base of the spadix. The length of the largest leaf measured from the tip to the point of the lobe is 19 inches; width below the leafstalk 10 inches; colour, deep green; texture, very stout, and the whole character of the specimen is indicative of superior cultivation. Perhaps you may not object to describe your method of growing Arums so well for the benefit of readers who desire to excel in their culture.

Cockroaches (J. W. W.).—They are the largest of our native cockroaches, the *Blatta germanica*. Professor Westwood, however, has great doubts whether this is truly indigenous. It is very abundant in Germany, and occurs also at the Antipodes. It is not a very common species, seldom occurring in houses, but being found in fields amongst heaps of rubbish, dead leaves, &c., sometimes in hollow trees. We have never heard or read of an instance of its having done any mischief to cultivated plants; still, if introduced to a garden it might soon increase and become troublesome, if circumstances were in its favour. For, as was pointed out some years ago in this Journal, the familiar *B. orientalis* sometimes quits the kitchen and makes excursions to gardens and frames where, owing to its nocturnal habits, it may do mischief frequently and escape detection.

Tuberose—Alocasia (J. G.).—You may treat Tuberose now practically the same as you would Hyacinths in the autumn, potting the bulbs and burying the pots in cocoanut fibre refuse till roots form and growth commences. They start the sooner with gentle bottom heat, and the plants grow admirably with the pots plunged in a warm damp medium, such as leaves, mainly, in frames in summer. If the pots are not plunged they should be stood on a moist base, not on a dry open lattice stage over hot-water pipes, or the leaves will become infested by red spider. For free growth they require a temperature from 60° to 80°, or more, with adequate moisture, full light, and a free circulation of air. Perhaps you had better wash all the soil from your Alocasia and pot in a fluffy mixture of fibrous peat sphagnum and plenty of crushed charcoal, plunging the pot in a hotbed in a frame or pit with a moist atmosphere, shading the plant from the sun. Readers have no occasion to apologise for seeking information; we exist to impart all we can.

Salad Plants (H. R. W.).—We have received the French seed packets and samples of seed. "Cerfeuil commun" is the common or plain-leaved Chervil, *Anthriscus cerifolium*. For ensuring a supply throughout the season seed may be sown on the south side of a wall in August, and the plants will stand the winter for spring use. Sow again now, both in an open sunny position and a cool shady place. A few leaves are used in salads and for culinary purposes when their flavour is desired. There is a curled leaved, also a turnip-rooted variety, the roots of the latter being used in a cooked state. "Pourpier à salade" is the common Purslane, *Portulaca oleracea*. It is an annual, and seeds are sown at intervals from April to August. For early spring use in salads plants are raised under glass. The soft stems and leaves are largely used in a cooked state in Holland. "Pimpnelle petite" is the common Burnet, *Poterium sanguisorba*. It is a hardy perennial, raised from seeds sown in the open ground now or in August. The plants are cut frequently for affording a supply of fresh green leaves for salads, to

which they impart somewhat of a Cucumber flavour. We note what you say on the other matter and have not the slightest desire to induce you to move in it. We are pleased to give what information we can on gardening subjects.

Eucharises Scorched (H. W. G.).—You are doing right by affording light shade from bright sun to prevent the scorching of the foliage. Some plants are more liable to injury than others by the sun. This depends on the condition of the plants, their rooting power, the support afforded, and the texture of the leaves; also the position occupied, and on the quality of the glass. We cannot say whether you would have done better by admitting more air and thus keeping down the temperature, because we have no idea of the temperature that has been maintained and the method of ventilation adopted. We know it is erroneous practice to permit a house to get excessively hot and then throw open the ventilators for bringing down the heat with a rush. That is conducive to scorching. You cannot do better than allow the plants to have as much sun as they appear to enjoy and not afford needlessly dense shade. Thousands of plants grow and flower well under constant light shade such as those to which you refer at Chilwell, and you are right in your supposition that those in charge of Mr. Pettigrew at Cardiff have more sun, but he would not allow the foliage to be scorched by refusing to afford shade when it would be beneficial to the plants. If you produce thick deep green leaves on plants which crowd their pots with roots you need have no fear of their not flowering.

Tuberous Begonias (J. W. S.).—Thousands of Begonia plants raised from seed sown a month or two ago we expect to see flowering beautifully this season, both in pots and planted out in flower beds. You are either not an expert cultivator or have not the requisite conveniences for growing the plants. Grown well, under suitable conditions, the plants cannot help flowering the first season. Stout short-jointed cuttings, neither too soft nor too firm, strike readily in a mixture of sand and leaf soil or cocoanut fibre refuse, with the pots plunged in a gentle hotbed of 80° or 85°, in a frame or other suitable place having a temperature of 60° or 65°, not overwatering, yet affording adequate moisture. Daily sprinklings are fatal to success if the soil is dry below. Cuttings strike freely in the summer inserted in light soil under handlights in a shaded position in the garden, indeed many are struck without the aid of glass. If correspondents who fail in anything were to briefly describe their procedure and cultural conveniences we could probably indicate the cause of failure. The less the plants are shaded the better, a little tiffany usually sufficing. In some houses they grow fairly well under light permanent shade, such as that from summer cloud. The most luxuriant and floriferous plants in open-air beds are not artificially shaded, but have abundance of roots working freely in rich moist soil. The more plants of various kinds are shaded the more shade they need, and many are weakened accordingly.

Diseased Damson Trees (J. H.).—We are unable to detect any insect, but the epidermis has been punctured by some insect or shot. The cause of the exudation is a fungus, named by Professor Oudemans *Coryneum Beijerinckii*, the mycelium of which develops a ferment, penetrating the cells, whereby tissue is formed with new properties. The serous matter in contact with the air is attacked according to Pasteur by a new series of organisms—aerobes, and these by others in succession, until the ultimate products are oxidised—the carbon, hydrogen, and nitrogen of the organic matter being transformed by the oxygen of the air into the inorganic elements. These dried or oxidised particles are gum; the white matter deposited around the edges of the wound is composed of carbonates of potash and lime, with a trace of magnesia. The disease is known as gumming, and particularly attacks species or varieties of the genus *Prunus*. The fungus is the exciting cause. There must be laceration or openings by which the germ tubes enter, and these may be effected by insects, which may also carry the spores. The best remedy is stamping out—the removal and burning of the infected parts, and the removal from the neighbourhood of Sloe bushes and wild Cherries. The common Laurel is also infected with this same fungus. Over-luxuriance in the trees has a tendency to induce the disease, but it may be aggravated by its opposite, viz., a deficiency of support, whereby the sap becomes morbid and the morbid matter is ejected by agency of the ferment. Perhaps this lack of energy is due to a deficiency of phosphorus or phosphoric acid. In this case superphosphate of lime is decidedly beneficial. Lifting and root-pruning are well-known means of preventing gumming when it proceeds from over-luxuriance, and applying phosphatic in place of nitrogenous manures. Paradoxical as it may seem, lifting and replanting is also the best remedy when the trees are weakly and infected with gum, because the fresh compost given causes an increase of the roots, thereby affording the trees more and better food. In this latter case, whilst there is an increase of nitrogenous matter, if decayed fibre is used, or manure, the change will only be temporary unless lime is applied, preferably in the shape of superphosphate, so as to be at once available, and there must be a corresponding addition of potash; 3 to 5 cwt. of superphosphate with half the quantity of muriate of potash per acre would go a long way towards ridding fruit trees of gum and canker. When the surface soil is deprived of what fruit trees need, including moisture, the roots descend into the subsoil, and as they cannot find the requisites of health there disease ensues and finds expression in the form of gum and canker.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes.

Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. P. K.).—The flowers were scarcely recognisable, as, besides being old, they were loosely packed and were consequently much bruised in transit. Perhaps it is a small example of *Dendrobium barbatulum*. (S. B.).—1, *Azalea linearis*. 2, *Acacia Drummondii*. 3, *Narcissus cyclamineus*. (W. T.).—1, *Oncidium concolor*. 2, *Laelia cinnabarina*. 3, *Cattleya Trianae*. 4, *O. longoglossum Rossi*. (M. M.).—1, *Adiantum Williamsi*. 2, *Asplenium cicutarium*. (Wm. H.).—1, *Cytisus purpureus*. 2, *Calceolaria violacea*. 3, *Polypodium pectinatum*. (Hills).—Yes, it is *Allium neapolitanum*, and is sent into Covent Garden Market in large quantities. (A. E.).—It seems to be an ordinary form of *Lilium candidum*.

COVENT GARDEN MARKET.—APRIL 16TH.

A SLIGHT improvement in business this week and all goods have been more readily cleared, but not till prices have tempted buyers.

FRUIT.

	s.	d.	s.	d.
Apples, ½ sieve	2	0	to	6 0
" Nova Scotia and				
" Canada, per barrel	18	0	25	0
Cherries, ½ sieve	0	0	0	0
Grapes, New, per lb. ..	5	0	9	0
Lemons, case	10	0	15	0
Oranges, per 100	4	0	to	9 0
Peaches, dozen	0	0	0	0
Red Currants, per ½ sieve	0	0	0	0
Black " " " " " "	0	0	0	0
St. Michael Pines, each ..	2	0	6	0
Strawberries, per lb. ..	3	0	6	0

VEGETABLES.

	s.	d.	s.	d.
Artichokes, dozen	0	0	to	0 0
Asparagus, bundle	6	0	12	0
Beans, Kidney, per lb. ..	1	6	0	0
Beet, Red, dozen	1	0	2	0
Brussels Sprouts, ½ sieve	1	6	2	0
Cabbage, dozen	1	6	0	0
Carrots, bunch	0	4	0	0
Canliflowers, dozen	2	0	4	0
Celery, bundle	1	0	1 3	
Coleworts, doz. bunches	2	0	4	0
Cucumbers, doz.	2	0	3 6	
Endive, dozen	1	0	0	0
Herbs, bunch	0	2	0	0
Leeks, bunch	0	2	0	0
Lettnce, dozen	0	9	1 3	
Mushrooms, punnet	1	6	to	2 0
Mustard & Cress, punnet	0	2	0	0
Onions, bushel	3	0	4	0
Parsley, dozen bunches	2	0	3	0
Parsnips, dozen	1	0	0 6	
Potatoes, per cwt.	3	0	4	0
" New	0	3	0	6
Rhubarb, bundle	0	2	0	0
Salsify, bundle	1	0	1 6	
Scorzenera, bundle	1	6	0	0
Seakale, per bkt.	1	0	1 3	
Shallots, per lb.	0	3	0	0
Spinach, bushel	1	0	2	0
Tomatoes, per lb.	0	6	0	0
Turnips, bunch	0	4	0	0

CUT FLOWERS.

	s.	d.	s.	d.
Anemone, dozen bunches	1	0	to	4 0
Arum Lilies, 12 blooms ..	2	0	4	0
Azalea, dozen sprays ..	0	6	1	0
Bonvardias, bunch	0	6	1	0
Camellias, dozen blooms	1	0	4	0
Carnations, 12 blooms ..	1	0	2	0
Crocuses, dozen bunches	1	0	2	0
Daffodils, dozen bunches	2	0	6	0
Dentzia, per bunch	0	6	0 9	
Enebaris, dozen	4	0	6	0
Forget-me-not, doz. bunch.	3	0	6	0
Gardenias, 12 blooms ..	3	0	5	0
Hyacinths (Dutch), in boxes each	1	6	3	0
Hyacinths (English), doz. bunches	3	0	6	0
Hyacinths (Roman) dozen sprays	0	6	1	0
Lapageria, 12 blooms ..	2	0	4	0
Lilium, various, 12 blms.	2	0	4	0
" longiflorum, 12 blms.	4	0	6	0
Lily of the Valley, dozen sprays	0	6	1	0
Marguerites, 12 bunches	2	0	6	0
Maidenhair Fern, dozen bunches	4	0	to	9 0
Mignonette, 12 bunches ..	2	0	4	0
" Fr., large bunch	1	6	2	0
Narcissus, 12 bunches ..	2	0	6	0
Pelargoniums, 12 trusses	1	0	1 6	
" scarlet, 12 bunches	6	0	9	0
Primroses, dozen bunches	0	4	0 8	
Primula (double) 12 sprays	1	0	1 6	
" (single) 12 sprays	0	6	1 0	
Ranunculus, doz. bunches	2	0	4	0
Roses (indoor), dozen ..	1	6	3	0
" Red, 12 blooms ..	2	0	4	0
" Tea, white, dozen ..	1	0	3	0
" Yellow	2	0	4	0
Spiræa, dozen bunches ..	6	0	9	0
Tuberoses, 12 blooms ..	1	6	2	0
Tulips (Eng.), doz. bunch.	4	0	6	0
Violets, dozen bunches ..	1	0	2	0
" French, per bunch	1	0	2	0
" Parme, per bunch	3	0	4	0
Wallflowers, doz. bunches	2	0	4	0
White Lilac, French, per bunch	4	0	5	0

PLANTS IN POTS.

	s.	d.	s.	d.
Aralia Sieboldi, dozen ..	6	0	to	12 0
Arum Lilies, per dozen ..	8	0	12	0
Arbor Vitæ (golden) doz.	6	0	14	0
Azalea, various, per dozen	18	0	30	0
Christmas Rose	0	0	0	0
Cineraria, per dozen ..	6	0	10	0
Cyclamen, per dozen ..	9	0	18	0
Daffodils, 12 pots	6	0	9	0
Dentzia, 12 pots	6	0	9	0
Dracæna terminalis, doz. 24 viridis, dozen ..	24	0	42	0
" viridis, dozen ..	12	0	24	0
Epiphyllum, per dozen ..	0	0	0	0
Erica, Cavendishi, per pt.	2	0	3	0
" various, dozen ..	12	0	18	0
" ventricosa, per doz.	15	0	24	0
Enonymus, var., dozen ..	6	0	18	0
Evergreens, in var., do en	6	0	24	0
Ferns, in variety, dozen ..	4	0	18	0
Ficus elastica, each	1	6	to	7 0
Foliage plants, var., each	2	0	19	0
Genista, per dozen	8	0	13	0
Hyacinths, 12 pots	6	0	9	0
Lily of the Valley, 12 pots	12	0	18	0
Marguerite Daisy, dozen	6	0	12	0
Mignonette, per dozen ..	8	0	10	0
Musk, per dozen	0	0	0	0
Myrtles, dozen	6	0	12	0
Palms, in var., each	2	6	11	0
Primula (single), per doz.	4	0	6	0
Rhodante, per dozen ..	8	0	10	0
Roses (Fairy), per dozen	8	0	10	0
" 12 pots	12	0	30	0
Saxifraga pyramidalis, per dozen	0	0	0	0
Spiræa, 12 pots	8	0	12	0
Tulips, 12 pots	6	0	18	0

Bedding Plants in variety, in boxes and pots.



THOUSAND-HEADED KALE.

FROM the present time onwards through May, June, and July this most useful crop may be drilled in accordance with the purpose

it is intended to serve. Drilled at once it is ready for use in August either for sheep, cows, or store cattle. The May sowings come into use in October, and are available till the end of the year, and those of June or July follow for early or late spring food. Thus much may be stated generally, but it should not be forgotten that the April sowings often give a supply of most valuable green food from autumn till late in spring. The weight per acre may or may not be equal to that of Drumhead Cabbages, but under high cultivation it comes very near it, and the Kale has the valuable property of an abundant second growth from stalks which are just so many naked stumps after the first foldings by sheep or cuttings for cattle.

The crop is a valuable one; both flock masters and dairy farmers regard it as specially *the* crop at certain seasons of the year, as being indispensable for their requirements, and success with it depends upon cultivation and management quite as much as with any other crop. It can serve no useful purpose to lay stress upon the loss of Kale in very severe weather, for such a loss may and does happen with roots occasionally, and the fact of its having proved generally a profitable and reliable crop is sufficient for our purpose. Soil is comparatively unimportant, but cultivation is most important, and just according to the condition and fertility of the soil will be the crop of Kale produced in it. Therefore be liberal both of labour and manure—giving as much so as if for a root crop—for depend upon it the results of “fair” to “very heavy” are governed by this, and when the soil is low in fertility we always use the double-breasted plough, placing all the farmyard manure in the furrows and drilling chemical manures with the seed. The plants then have plenty of sustenance as well as depth of soil and a fine tilth, all tending to quick germination, speedy and robust growth, and heavy bulk of crop.

The manner of the clearance of the crop depends upon that which is to follow, and as we generally take a corn crop after Kale the stalks we got up with the roots on—not chopped off—as soon as a fold is finished, and they are chopped up, spread over the surface and ploughed in. If this is done fold by fold it becomes just as much a matter of course as root slicing for the sheep, and instead of being regarded as a nuisance to be got rid of the stalks thus turned to account are really valuable as a fertiliser.

For folding with hoggets towards the end of the year we especially favour a mixed crop consisting of alternate strips or “lands” of Swedes and Kale. This plan had its origin in the success resultant from filling up vacancies among Swedes with Kale, the mixed feed being especially liked by the sheep, and subsequently the Kale lands always afford a supply of plants for filling up blank spaces among the Swedes. For certainty both in cropping and hardiness we have found Kale altogether preferable to Swedes, and it is certainly very wholesome nutritious food. Another advantage not to be overlooked is the fact of the stems being available for a second growth even when cut off for cows close to the ground when other food is scarce, and in a backward spring this second growth is of especial value. This fact alone ought to obtain a place for Kale upon every farm, and it is clearly to a farmer's interest to curtail the space usually devoted exclusively to root culture and to devote part of it to Kale culture, which with plenty of silage would enable us to become far more independent of adverse seasons and weather than hitherto.

Autumn Giant Cauliflower. It was in the neighbourhood of Swanley that we first saw sheep folded upon this crop, and it was a veritable “eye-opener.” Not upon the dainty “flower” itself were the sheep regaled, for that had been cut from every stalk and sent to market, but upon the leaves left to grow to a large size upon the stems, and thus afford a lot of tender wholesome food for the flock, and ensure a thorough enrichment of the soil from the folding. Now this profitable crop need not be long upon the land, and if spring sown plants are raised in a seed bed they may be transplanted to land where sheep have been folded upon Rye or Winter Tares, and so be cleared off in time for early autumn

cultivation and a third crop. If this is termed sharp practice it is sound enough, and it is based upon the principle of the soil being a storehouse of plant food, which we have only to keep well and regularly supplied in order for it to answer promptly all our demands and requirements.

WORK ON THE HOME FARM.

Since our last note was written especial attention has been given to the value of corn drills, which are also available for corn hoeing, at a meeting of the Farmers' Club. As mention was made there of the steerage hoe, it may be as well to explain for the benefit of those not having a steerage drill hoe, that there is a simple and comparatively cheap form of corn hoe to be had, the steerage or guidance of which is managed by means of handles behind the hoes. It was claimed for steerage hoes that they are the most efficient destroyers of Charlock, and we may concede that they are a means to so desirable an end, and they are nothing more. Charlock comes as thickly among the corn in the rows as it does between the rows, and no hoes can touch the pest there. No quarter must be given to Charlock whenever it makes its first appearance, for it is precisely because it was not stamped out at first that it has spread far and wide through the land, and once it is established upon a farm the process of eradication is simply ruinous. In its primal condition of one of our native wild plants it is comparatively inconspicuous, but once it finds its way to cultivated land it soon gets beyond control, and yet if it could only be kept within bounds and well under control it would be useful enough. It is the wild Mustard (*Sinapis arvensis*), and we can very well dispense with it altogether, for the White Mustard (*S. alba*) of commerce answers all our requirements.

Corn sowing even on clay farms is now done, and we much fear there will again be many inferior fields of Barley, as so much of it was sown late in the season. The second and third weeks in March are considered the best two weeks of the whole year for sowing Barley in East Anglia, and the weather was so unfavourable then that it is certain none was sown on heavy land. Glad are we to say more and more attention is gradually being given to Oat culture; and without at all regarding Oats as a panacea for hard times, it is certain that by means of better culture they may become much more profitable than heretofore. Of other sowing now claiming prompt attention there are Mangolds, Swedes, Cabbage, Kale, Tares, mixed seeds for layers and permanent pasture, Carrots, Kohl Rabi, and White Mustard. As foul land is cleared of weeds Mustard is sown either for folding or to be ploughed in, and if the season proves favourable a second sowing will follow, our aim being to render the land fertile as well as clean for another season.

OUR LETTER BOX.

Turkey III (W. S.).—The swollen head looks like the effect of a cold, but as you give us no particulars as to age, feeding, &c., we cannot say for certain. Send full particulars to our contemporary *Poultry*, and in the meantime remove him from the hens, keep him in a warm house, feeding on soft nourishing food sprinkled with ginger. Give him 5 drops of camphorated oil in a teaspoonful of glycerine night and morning, and sponge the swollen parts frequently with warm water. A good plan is to hold the bird's head over the steam made by pouring boiling water on a few hops. If there is an offensive smelling discharge from the nostrils and mouth he has roup, and you should at once get No. 337 of *Poultry*, where the complaint is fully dealt with. It can be had post free from this office for 1½d.

METEOROLOGICAL OBSERVATIONS.

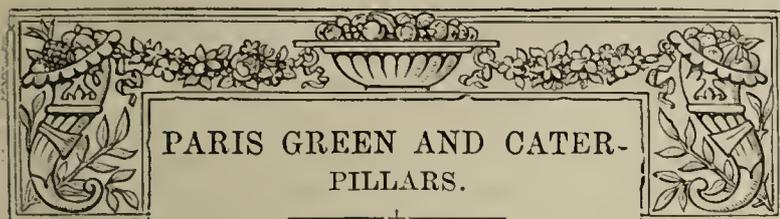
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
1890.										
April.										
Sunday	29.916	49.8	45.4	W.	45.0	54.7	41.7	76.4	39.4	0.054
Monday	29.511	49.0	46.6	S.W.	45.9	56.8	48.2	103.6	41.7	0.055
Tuesday	29.648	43.5	39.5	W.	44.9	52.4	35.7	101.3	30.4	0.141
Wednesday ..	29.878	43.1	36.9	N.W.	44.1	47.8	37.3	89.5	32.6	0.052
Thursday	29.726	40.0	33.1	N.	43.6	44.9	36.1	79.4	33.3	0.093
Friday	29.914	42.2	36.9	N.	42.8	50.9	35.3	98.7	26.7	—
Saturday	29.836	41.2	37.2	N.	42.5	51.0	32.8	101.7	24.4	—
	29.775	44.1	40.1		44.1	51.2	37.9	92.9	31.4	.335

REMARKS.

- 6th.—Generally cloudy in the morning; occasional slight showers in the afternoon.
7th.—Dull and rainy till noon, then fine and generally bright, excepting a shower at 6 P.M.; showers again at night.
8th.—Cloud and sunshine, with high wind, till 11 A.M., then heavy shower of soft hail (apparently fragments of spheres about ¼ in. diameter), lasting five minutes, thunder at 0.50 p.m. (three peals) and more soft hail, some nearly ½ in. in greatest diameter; heavy rain from 5 P.M. to 7 P.M., then fine again.
9th.—Fine and generally bright.
10th.—Dull and drizzly morning; showers in early afternoon; fine and bright for an hour or so before sunset.
11th.—Bright and fine throughout.
12th.—Bright and fine throughout.
On the whole a fine week, noticeable chiefly for the sharp radiation frosts on the last two days.—G. J. SYMONS.



IN your issue of the 30th January last you did excellent service to fruit growers by giving engravings of branches taken from some of my fruit trees sent to you by my gardener, Mr. S. T. Wright. Fig. 17, c (page 95), showed within a radius of about a quarter of an inch a deposit of no less than 152 winter moth eggs. The total loss of my fruit crop of last year caused by these pests, and in addition the wholesale destruction of this year's Pear buds, naturally decided me to do my utmost to get rid of the devastator. A serious task it has been, and only very partially successful. The number of trees is about 6000. Three men were occupied six weeks in cutting off the ends of branches, and I am afraid to say how many millions of eggs we have burned. By keeping branches in my early Peach house, and watching them daily, I made the unpleasant discovery that the hatching period is spread over seven weeks. Out of doors it seems to be shorter. I have also been experimenting on branches dipped in sundry substances and liquids with a view of destroying the eggs by either sealing them in the interstices, which can be done with white lead, or burning them with vitriol, &c., which cannot be depended upon.

Then came the difficult question, What is to be done? I have been in correspondence with Miss E. A. Ormerod, whose kindness and energy are unending. She very kindly sent me her report for 1889, and that decided me to try Paris green. Up to the present time we have been aiming at compassing the death of our insect enemies by direct action on their bodies, now we have to arrive at the result indirectly by poisoning their food. Let me at this stage caution all fruit growers, whether masters or gardeners, against accepting anything I may write, but to make experiments for themselves. Miss Ormerod informs us in the report above named that the manufacturers of Paris green are Messrs. Blundell, Spence & Co., Limited, of Hull, and 9, Upper Thames Street, London. These gentlemen sent me a supply, and have kindly informed me that Paris green has been in use for many years in the United States as an insecticide.

Our earliest discovery of caterpillars was made on the 27th March, the season being then three weeks earlier than 1889, and consequently there was plenty of food ready for them. I was caught napping I am afraid—lulled into a sense of security by the enormous destruction of eggs. My magnifying glass soon brought a rude awakening. Here let me say that any opinion expressed by anyone not using a magnifying glass is utterly valueless. The caterpillars in the early stages are so small that very few eyes can detect their existence. When leaves are not to be had they do equally well on buds, and a very few days suffice for the destruction of fruit prospects. I first made tests in order to arrive at a safe strength at which to apply the liquid without damaging the foliage, and found that some little damage was done to the leaves, but not to the buds, from an application of 1 oz. of Paris green to four gallons of water. Messrs. Blundell write, "Paris green should be mixed with water—say 1 lb. to 200 gallons water, and never stronger than 1 lb. to 120 gallons water. The application should be in the form of fine spray by means of a force pump. The foliage need not be drenched, but the spray should be allowed to fall upon the trees until it begins to drop from the leaves. Dry weather should, if possible, be chosen for the application. The Paris green is a fine

crystal, insoluble in water. It should be kept in suspension during use by being well stirred. As Paris green is poisonous be careful in the use of it, especially in the dry state, and avoid breathing the poison which is given off when the colour is handled." These gentlemen are now laying themselves out to supply the demand which is springing up, and have just sent me a circular with all needful information, which doubtless they will forward to anyone interested.

After my experience as above I adopted as a simple and easily remembered formula 2 ozs. of Paris green to 20 gallons of water; but think it would be prudent after the first spraying to reduce to 2 ozs. to 25 gallons. Owing to unavoidable delay I could not commence spraying until the 11th inst. I much regret this, for it is evident from what I have written above that all trees should be sprayed before the first caterpillar is hatched. The delay has caused me serious damage. On examining the sprayed trees on the morning of the 12th I found quantities of dead caterpillars and aphides. Bearing in mind the fact that the eggs are hatching during a period of some weeks, and also that it was desirable to ascertain whether repeated spraying would injure the trees, I had one row of Mother Apple sprayed for the second time that day (12th), and the result being more deaths and no apparent damage to the foliage, we sprayed on the 14th and again on the 17th. At the present date (19th) I can report favourably all round. So long, however, as the caterpillar appears we must spray.

The bitterly cold weather is against us, as it prevents the opening of the buds, and the liquid cannot easily find its way into the folded leaves where the insect is eating away at its ease. I am afraid no more can be done this season, but not a moment should be lost. I take a very gloomy view of fruit prospects in all districts infested with caterpillars last year. Pears, Apples, and Plums are alike affected, and the worst of it is that the apathy or want of knowledge on the part of the enormous majority of fruit growers has led them to neglect all remedies. I can only say that in spite of great vigilance, and after the adoption of all sorts of preventive measures, I shall regard myself as very fortunate if I can save a fair crop of Apples and Plums, and this under more favourable conditions of soil, climate, and culture than fall to the lot of most growers.

One word as to spraying. All gardeners up to their work can of course spray, but Mr. S. H. Stott of Fulwood, near Preston, has patented a small brass sprayer, which will do good service where skilled labour is not available. The strawsoniser is a perfect sprayer, and has been remodelled, but owing to a strike among the workmen at Messrs. Hornsby's works is not for the moment available.* Mr. Strawson tells me that his new hand machine will throw spray many feet high. With its aid and the use of Paris green I entertain strong hopes that farmers, hop growers, and gardeners will be able to show good fight against their common enemies, and that at a very moderate outlay. Let me strongly urge all who are troubled by insect pests to think over what I have written, and act upon it.—D. LEE CAMPBELL, *Glewston Court*.

[Very strongly do we advise all our readers who grow fruit in localities where the greatest of all scourges to the trees abound—the winter moth and its voracious larvæ, the looper caterpillars—to "think over" very carefully what Mr. Lee Campbell has kindly written for the public benefit. He is generous enough to credit us with doing good service by publishing (in our issue above mentioned) magnified examples of the eggs and lurking places of the small but destructive foe of the orchard and fruit garden; but the chief credit belongs to our correspondent and his gardener for discovering the "nests" in which the eggs of the winter moth were ensconced, and placing samples at our disposal. So far as we know nothing of the kind that we were able to represent had been hitherto made public, even if the position of the nesting eggs were

* The strike, we believe, has terminated.

suspected; and now Mr. Campbell has added to the obligations of fruit growers by the careful and exhaustive experiments that we were aware were being conducted at Glewston Court, and of which he is able to say in respect to the use of Paris green that he "can report favourably all round." The remedy has been frequently mentioned in our columns as proving effectual in America, and the strength and method of applying the poison have been indicated; but we have not hitherto been able to publish any narration of the successful use of Paris green in this country, though it is said to have been found fatal to caterpillars and harmless to trees by a nurseryman. It will be perceived that caution is advised in the use of the arsenical preparation, and the strength of 2 ozs. to 25 gallons of water should not be exceeded; also the importance of keeping the water well stirred should be remembered, or the fine crystals will sink to the bottom of the vessel. Note should also be taken of the extreme minuteness of the early hatched caterpillars, which may, and doubtless do, abound on trees when their presence is not suspected. A magnifying glass reveals their existence when they are not visible to the naked eye. On the part of the fruit growers of the kingdom we thank Mr. Campbell for making known the result of his endeavours to conquer an enemy that, if unchecked, will assuredly render fruit growing impossible in some important fruit growing districts in the southern and midland counties.]

VARIATION IN PLANTS.

THE plant world affords abundant subjects of the deepest interest to students of all classes, especially to amateur and professional horticulturists, who are concerned, not only with the welfare of individual plants, but with their improvement either for ornament or use. An observer finds much to excite wonder in a most cursory review of the vegetable kingdom; the marvellous variety of forms, the wealth of floral beauty, the numberless valuable food and other products of so much importance to mankind, furnish ample material for investigation and thought. No section of this great subject having a direct bearing upon the art of gardening has, however, received the same scientific attention as the fertilisation and hybridisation of plants. Some of the most celebrated naturalists, as, for example, Dean Herbert and Charles Darwin, have studied it closely, experimented largely, and recorded their own with others' observations in books that rank amongst the standard works of the English language. Ever since the phenomena connected with hybridisation has been in some degree comprehended practical men have not been slow to take advantage of the means it afforded to increase the diversity, beauty, and usefulness of plants.

For ornamental purposes alone it was soon ascertained that the range of floral colouring in particular favourites could be greatly extended by a judicious and systematic crossing and seed-raising. Then, too, the same methods applied to edible vegetables and fruits, with farther aid of selection, have been found to yield important results by extending the seasons at which they could be obtained and by diversifying their flavours. Such beneficial results as these, in addition to the interest attaching to the matter, are sufficient to prove that the subject is worthy of close attention on the part of all engaged in horticulture, especially as there is still abundant scope for experimental research. In the following remarks it will not be possible to completely review the whole of this extensive subject, but we can discuss it generally; and in pointing out the more important facts we may stimulate others to closer observation, and upon the development of this faculty depends a good deal of what is termed successful gardening.

The power of man in the production of plant forms depends entirely upon the inherent tendency to variation marking the greater portion of the vegetable world. In our meadows, heaths, and in any uncultivated district it is easy to find examples of this amongst the native plants of this country. The differences are often very slight, and such as only an experienced eye could detect; but, on the other hand, forms are occasionally found undoubtedly having a common origin, yet with strongly marked characters that cannot be overlooked. It is only necessary to refer to the British Ferns for instances illustrating these observations, but many flowering plants afford examples of scarcely less value. Of course variations in one species are here referred to, but what we regard as a species is simply a group of individuals agreeing in certain characters and possessing some peculiarities of formation by which they can be distinguished from all other members of the vegetable kingdom. Now, we find amongst animals of one species,

or even of one variety, sufficient characters to render them easily distinguishable from their near relatives, and by close observation it is possible to detect, and even become familiar with, points of difference that in the same way mark the individual plants raised from one species or one parent. Here we have the commencement of a divergence that may be perpetuated and increased, with the result that a variety with more or less strongly marked characters may be ultimately secured, or forms of even greater value may be obtained, for in many races of cultivated plants variations have been raised by accident or design that if found in a state of Nature would probably have been regarded as distinct species.

Botanists have frequently had to modify their views respecting what constitutes species in some families of plants, as the discovery of other forms intermediate between those already known have linked apparently distinct species together so closely that their amalgamation became necessary. What may be termed the capacity for variation in particular species cannot be discovered at a glance, and it is only wide knowledge of related forms, or experience of the plant's behaviour under cultivation that permits an approach to an accurate opinion to be formed. All do not possess the same elasticity, for some species preserve their chief characteristics unchanged in a wild state, few or no variations are found, and they present constant types, often under very diverse circumstances, soil, situation and climate. Some of the most widely distributed plants are examples of this, and travellers are almost startled sometimes by the appearance of a familiar plant, true in all its characters, but thousands of miles from its British home.

Others, again, are influenced to a certain extent by their surroundings, and we thus have what are termed geographical varieties, all, however, tolerably true to the main type. There are still others that vary greatly in one locality, where the differences in situation can count for little, and the variation depends upon the characters being less firmly fixed, and consequently more readily influenced by cross-fertilisation.

Under cultivation we find these various classes of plants behave very differently. Some absolutely refuse to submit to man's interference or efforts to alter their characters, and retain their distinctions unchanged. Others after a long course of culture seem to have their constitution so disturbed that variation is induced, and when once this is effected it becomes a matter of perseverance, in some degree, as to how far it shall be extended. Those which have been noted as variable in a wild state usually become still more so under artificial conditions. They give rise to an astonishing diversity of forms, and their fixity of character being once broken down they are like plastic moulds in the hands of the experienced cultivator, who within a certain range can obtain almost any combination of tints or floral form he desires.

In a state of nature we find, therefore, as far as necessarily limited observations can determine, that the variability of species differs greatly, but under cultivation we also see the tendency to variability considerably increased. Altered conditions of existence are the main causes of this, and it follows if a wild plant by any chance should find a home and thrive in a soil and situation greatly different from that which its relatives usually occupy, divergence of character might be induced and inherited by its descendants. Here we have the first step to a variety, and the differences may become accentuated in succeeding generations, particularly if the character so developed affords the plant any help in preserving its existence by ensuring fertilisation, or by a more vigorous constitution enabling it to resist climatic evils. Such variations might and do occur without cross fertilisation, simply from the influence exerted upon the plant by different conditions of location. When a change is once started it is soon extended, and it is then that cross-fertilisation comes into action with more marked force.

Amongst many cultivated plants variations are commonly obtained from the self-fertilised flowers of one plant without any attempt at crossing, but it is true that the results may often represent reversion to the characters of former parents, or a combination of these, rather than absolutely fresh productions. Examples are afforded by many of the garden annuals and other plants usually raised from seed, for it is most difficult to keep any selection of these true without large quantities are grown together, and even then much "weeding" is often required. Under cultivation therefore, as in Nature, variability is to some extent caused by altered conditions of existence, and subsequently many variations that appear, may be simply reversions or combinations of pre-existing characters.

In gardens another form of variation plays an important part—namely, "sporting;" but it rarely happens that Nature makes any provision for the preservation of such freaks, and it is only through propagation by cuttings, grafts, and buds that so many have been multiplied artificially. It is seldom that they are reproduced from seed, though an alteration has been effected that may have

important ultimate results. "Sporting" commonly occurs in the foliage and growth of plants. The leaves become variegated, or are cut and altered in shape, examples of which are seen in Hollies, Lilies, Maples, with many others of our trees and shrubs. Such productions can only be perpetuated by vegetative increase, and if they take place in wild plants they die out with that upon which they originated. An exception may perhaps be found in the case of the whole or a large portion of an herbaceous plant with creeping roots having its foliage variegated, and some of the variegated Grasses thus have the power of increase without artificial assistance. "Sporting," as everyone knows, also takes place in flowers, the Rose and the Chrysanthemum furnishing abundant examples of new forms originating in this manner. There again, however, the variations cannot be perpetuated by seed, and resort must be had to cuttings in the Chrysanthemums or budding in the Roses, and it is not likely flower sports would be more readily preserved in a wild state, so that, as with leaf sports, it is extremely probable the majority perish.

So far we have only been dealing with variations as apart from natural hybridisation or cross-fertilisation, but we must now turn our attention to this large and important portion of the subject, and it will be seen that several of the points already detailed have a considerable bearing on the matter.—L. CASTLE.

(To be continued.)



PHAIUS GRANDIFOLIUS.

DIRECTLY signs of growth are visible repotting should be done. The old soil should be carefully removed from amongst the roots, and the plants returned to clean pots of the same size. These plants do well in a compost of fibry loam two parts, one part fibry peat, and the other part of leaf mould. To this may be added one-seventh of decayed manure that has been passed through a fine sieve, a liberal quantity of coarse sand, a little charcoal, and a few quarter-inch bones. The pots should be moderately drained, and the base of the pseudo-bulbs just raised above the surface of the soil. After potting place the plants where they can be kept close and in a moist atmosphere. If practicable plunge the pots to prevent watering as long as possible. The soil should never be allowed to become dust dry, but water must be given carefully until growths extend and roots are forming freely. If they are over-watered in their early stages the young growths are liable to become spotted. This must be carefully avoided, or the foliage is disfigured the whole of the season. If the plants are infested with scale clean them thoroughly, or with increased heat they will soon attack the young foliage, which for some time cannot be cleaned without injury.

SOBRALIA MACRANTHA.

As signs of growth are visible at the base potting may be done. If the compost is in good condition and the plants need larger pots this can be done without disturbing their roots. Use for a compost good fibry peat, charcoal in lumps, and sand; a layer of sphagnum moss may be placed on the surface. The pots should be one-third filled with drainage, and the plants slightly elevated above the rim. Plants that have become crowded with growths may be carefully divided. If the compost at the roots is in good condition they quickly recover and grow freely. Being a strong free grower this plant bears division well, and will make strong flowering growths the first season. They need judicious watering for a time afterwards.

THUNIA MARSHALLIANA.

Plants that have had a lengthened period of rest may be started into growth. Being a strong free grower the compost advised for Phaius may be used. This plant is often grown too close and too warm, with the result that its growths run up several feet in length, and are too soft to flower. Directly they start into growth they should be potted, and then grown in a light position in a vinery or in an intermediate structure fully exposed to the sun, and where air can be admitted daily to maintain a firm sturdy growth. Plants given this treatment will make stout growths, and flower when they are 18 inches to 2 feet high. These plants may be grown one or two good pseudo-bulbs in each 5-inch pot, or a number together in those of a larger size. For effective purpose while in the flower the

former is probably the best. Once these plants are rooting and growing freely weak stimulants will prove beneficial.

DENDROBIUM PULCHELLUM.

This is a charming little Orchid for suspending from the roof in baskets. It grows luxuriantly in any moist shady position, but requires to be thoroughly ripened to flower it well. It grows and roots so freely that there is no difficulty in establishing it in pans or baskets. The baskets should be nearly full of charcoal, and the remaining compost may consist of peat fibre and sphagnum moss, or both mixed together. Rooted portions soon establish themselves, and all the care that established plants need is to remove as much of the old moss as possible, supply fresh, and then peg the pseudo-bulbs on to it. Do not over-water these plants in their early stages of growth; but when once they are growing freely the syringe may be used twice a-day, and the baskets soaked occasionally.—ORCHID GROWER.

L'ORCHIDÉENNE.

THE eighteenth meeting of this Society took place in Brussels on the 13th and 14th April. To meet a popular demand these Exhibitions have been extended to two days, which speaks well for the increasing love and interest in Orchids and their culture in this country. The Show was held as usual in the conservatory of the establishment L'Horticulture Internationale (Linden), Park Leopold. The exhibits, although not so numerous from a point of numbers, they were exceeding those of the last meeting in quality. Several interesting and fine Orchids were staged. The Jury, over which M. Kegeljan presided, was composed as follows:—MM. Lubbers, Secretary; Massange de Louvrex, Rodigas, Miteau, Wallaert, and De Meulenaere. M. G. Warocqué, the President of the Society, was one of the chief contributors, and especially noticeable were a marvellous variety of *Cattleya Mossiæ* Madame A. Warocqué, with blooms of immense size; *Odontoglossum crispum fastucum*, *crispum guttatum*, several fine varieties of *O. luteo-purpureum*, *O. Reichenheimi*, carrying an enormous spike, and a grand variety of *O. Ruckeri*. Prince Metschersky presented a beautiful variety of *Cattleya speciosissima* named Regina Olga, the large rose sepals and petals of which are beautifully mottled with purple. M. Jules Hye-Leysen contributed among others a splendid variety of *Cattleya Mendeli*, several fine forms of *O. triumphans*, one of which being of very rich colouring and large size. The Comte de Bonsies staged a fine variety of *Cypripedium Mastersianum* and *Harrissianum nigrum*. M. Van Turschoot also contributed a small group, among which were a fine variety of *Miltonia Warszewiczii*, well flowered. Dr. Van Canelwaert sent a finely spotted form of *Odontoglossum crispum*, *O. tripudians*, and others. Madame Gibez, Tens, France, contributed as usual to the success of the meeting by sending a number of cut blooms. A well flowered specimen carrying an enormous spike of *Oncidium sarcodes* was shown by Dr. Capart. M. Van Lausberge sent a well flowered plant of *Pholidota gracilis*, not a showy Orchid but very interesting. M. Pourbaix, Mons, also contributed a small group, among which were a well flowered piece of *Cœlogyne ocellata maxima*, a species often despised, but when seen to perfection is most lovely. A magnificent variety of *O. vexillarium splendidum* was staged in a large group by L'Horticulture Internationale (Linden). The plant carried four spikes, with flowers of very large size. The splendour of colour must be seen in nature to realise the beauty; description is impossible. Noticeable were also several fine varieties of *Vanda suavis* and *tricolor*, well flowered specimens of *Lycaste gigantea*, a large number of choice *O. crispum*, *Phalænopsis Stuartiana*, *stellata*, and others. In the group of M. Peeters we noticed *O. hystrix giganteum*, *O. nebulosum*, *O. Pescatorei*, *O. Oerstedti majus*, *O. Jenningsianum*, *O. lutcopurpureum*, beautiful spotted form of *O. crispum*, and a large specimen of *O. cuspidatum*, well flowered; *Lycaste Skinneri alba* and *gigantea*; *Cymbidium eburneum*, and the rare *Epidendrum Wallisi* carrying several fine spikes of bloom, and a fine specimen of *Cypripedium hirsutissimum*. A number of certificates were awarded.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 325.)

SITUATION.

UNQUESTIONABLY the best site for a fruit garden or orchard is a slope inclining to points between south-east and south-west. A gentle slope due south, or preferably facing a little south-east, so as to face the sun at about eleven o'clock in the forenoon, is the most suitable. Ground inclining due east is objectionable from its exposure to the cold winds that often prevail from that quarter during the spring and early summer months, the advantage of

shelter from the strong gales that prevail from the west very often in late summer and autumn being counterbalanced by the incidental deprivation to the site of the afternoon and evening sun. A due west incline is even more objectionable, by reason of the winds that prevail from that point during the late summer and early autumn months, a "windfall" of Apples being a serious disaster. A south-west aspect is also inadvisable, on account of the strong gales occurring about the time of the autumn equinox, otherwise it is the most desirable, as westerly breezes are always warmer and moister than easterly. Tolerable results may attend planting on slopes inclining northwards. Trees so located may have the blossoming period retarded so as to escape frosts, which destroy the crops of those on southern exposures, but the crop thereby insured will not compensate for the greater perfection those on the southern incline generally attain, as fruit on cold exposures does not acquire the size, colour, or quality of that grown in locations having the full benefit of the sun, particularly the late summer and autumn rays.

Slopes should not be other than commanding a majority of the solar rays and not too steep, as we have to consider the supply of moisture—the rainfall and its appropriation as well as catching sunbeams. For orchards the incline ought not to exceed a fall of 1 foot in 10 feet, but with dwarf culture and ridge or terrace planting the incline may be considerably more, as the steeper the slope up to 65°—the perpendicular in that case being about half the base—the greater benefit will be derived from the sun's rays, and being elevated the trees would not be as liable to suffer from spring frosts as those on low ground, as increased surface for absorbing correspondingly enlarges the radiating, which will counteract condensation. Granted slopes facing south-east to south-west, properly sheltered from west to north round to east, it is certain as large, highly coloured, rich, and better—because juicier—Apples could be grown as any imported. Elevation, however, makes a difference of about $\frac{1}{2}$ ° in every 100 feet of altitude, but the inclination of the ground to the sun more than compensates for any loss of heat through altitude, and the rarefaction of the atmosphere is singularly solidifying of the growth and concentration of colour and quality in the fruit.

The lower part of a gentle declivity in sheltered localities is perhaps to be preferred for an orchard, yet where the ground is not liable to suffer from drought, a slope of not less than 1 foot in 30, at an elevation fully one-third of the hollow or total depth, is decidedly preferable to a site at the foot of a slope, as there is not only danger to be apprehended from spring frosts, but the water draining from the higher ground making it wetter (I readily admit richer, and securing greater uniformity of moisture), conduces to a late growth, with its attendant immaturity of wood and resulting canker. A very low situation may have an alluring depth and richness of soil, and efficient draining present no obstacle, yet it is not a good site for an orchard, as it occasions the condensation of moisture—with fog and frost. Level ground has the advantage of being easily worked as compared with inclining, and is not so liable to suffer from drought, as the rain does not run off as after a dry period on slopes, but penetrates and keeps the subsoil moist at all seasons, superfluity being carried off by efficient drainage. A rainfall of 24 to 26 inches will meet all requirements of the Apple as to moisture on the lower part of slopes as well as on level ground, as also slopes that have not a sharper incline than 1 foot in 30. It is necessary, however, to take into consideration the nature of the subsoil, for where there is a stratum of gravel or other natural drainage under the loam the rainfall, though it be 24 to 26 inches, may be inadequate, and in the case of slopes sharply inclining something more, through the drying influence of the under strata, it may be necessary to afford the requisite moisture in dry periods during the growing season. A command of water from a higher source should always be kept in view when treating with slopes. In planting slopes much may be effected by furrows between the rows of trees in preventing the water running off in summer without staying so long as to be absorbed by the soil, and in localities where the rainfall is excessive, slopes and the ridge system of planting may be a necessity alike of getting it into the soil when wanted, and causing its equal diffusement throughout the slope, for it necessarily follows when there is no such provision for catching and keeping the rain, that it will pass off according to the inclination, and whilst the base is saturated the upper part is "dry as dust."—G. ABBEY.

(To be continued.)

THE DAFFODIL CONFERENCE.

THE real business of the Daffodil Conference, in the Royal Horticultural Society's garden at Chiswick, commenced on Wednesday, April 16th, when Professor Michael Foster took the chair at 2 p.m. in the conservatory or vinery, and opened the proceedings with an address.

He was supported by the Rev. W. Wilks, the Rev. G. H. Engleheart, Mr. F. W. Burbidge, Mr. James Walker, and Mr. C. R. Scrase-Dickens, Secretary of the Narcissus Committee. There was a good attendance of Fellows and visitors, and much interest was manifested in the proceedings.

Professor Foster said he had some connection with the first Daffodil Conference in 1884, which took place at South Kensington, and he thought that regarding the Exhibition provided this year, and the place where it was being held, they had good reason to congratulate themselves, for if they were not sitting under their own Fig tree, they were at least under their own Vines. "We are," said Professor Foster, "essentially gardeners brought together by our love of flowers, and the object of the meeting is to increase our love of the Daffodil in particular. It has been rightly said that we can safely let alone the good and the true, but what we have to do is to take care of the beautiful. So it is our desire to take care of the Daffodil." He then referred to the importance of correct and systematic nomenclature, and remarked that the leading points in a good name are that it should be one which can be written, read, spoken, and remembered with ease. Where possible the name should indicate the nature of the plant or its chief characteristics, but the difficulties in the way of the general adoption of such a scheme are often insuperable. The Narcissus Committee had, however, performed useful work and simplified the names to a great extent, as well as pointing out the synonyms and assisting in the removal of much confusion. Much valuable information had also been gained respecting the Daffodils, some of which they would be entertained with in the lectures to follow.

The Chairman then announced the awards of the Judges as follows: The silver cup offered by the Rev. W. Wilks was presented to the donor. Two silver medals offered by Messrs. Barr & Son were awarded to Mr. C. W. Cowan, Valleyfield, Pennycuik. A gold Banksian medal was awarded to Messrs. Barr & Son, King Street, Covent Garden, for their large collection of Daffodils; a silver-gilt Flora medal to Mr. James Walker, Ham Common; a silver Flora medal to Messrs. J. Veitch and Sons, Chelsea; and a silver Banksian medal to Mr. W. Poupart of Twickenham.

The Secretary, Mr. C. R. Scrase Dickens, then presented a report of the work performed by the Committee since its formation in 1886. The desirability of adopting some uniform system had led to the institution of a committee of specialists, which held meetings in March, April, and May of 1886, and each succeeding year. The first and chief part of the business was the substitution of English names for Latin titles in the case of all seedlings raised under cultivation. They had also adopted a method of registering the names of those varieties considered most distinct. In this way fifty-four had been recognised, the names of which follow:—*Pseudo-Narcissus*—Automedon, Ard Righ, Challenger, Captain Nelson, Troilus, Achilles, Vicar of Lulworth, Golden Prince. *Major*—Henry Irving, Emperor, P. R. Barr, Distinction, The Czar, Glory of Leyden, Madame de Graaff, Samson, Santa Maria. *Bicolor*—Empress, John Horsfield (Horsfieldi), Camoens, Dean Herbert, J. B. M. Camm. *Moschatus*—Leda, Minnie Warren, Gladys, Niobe, Little Nell. *Incomparabilis*—Sir Watkin, Autocrat, Queen Bess, Gloria Mundi, Mary Anderson, Lulworth, C. J. Backhouse, Princess Mary. *Backhousei*—William Wilks, Nelson's Orange. *Bernardi*—H. P. Buxton. *Tridymus*—A. Rawson. *Leedsii*—Duchess of Westminster, Acis, Beatrice, Gem, Minnie Hume, Madge Matthews. *Barri*—Conspicuous. *Intermedius*—Sunset. Also Madame Plenp, Lena, Mrs. Walter Ware, Duchess of Teck, Golden Vase, Miss White. The Committee does not attempt to deal with sub-species, or those to which the botanist would apply Latin names. Mr. Dickens mentioned that in 1887 attention was called to a disease that caused much loss amongst the Narcissi, but since then there had been no opportunities of investigating the matter.

The next business was the reading of the following admirable paper by Mr. Burbidge.

HISTORY OF CULTIVATED NARCISSUS.

[Abstract of a paper read at the Narcissus Conference held at the Chiswick Garden of the Royal Horticultural Society on April 16th, 1890, by F. W. Burbidge, M.A., F.L.S., Curator of Trinity College Botanical Gardens, Dublin.]

MR. BURBIDGE prefaced his lecture by quoting the sing-song lines of the children—

"Queen Daffadowndilly has come into town
In yellow petticoats and a green gown,"

and remarked how singularly appropriate it seemed to him, this holding of a four-days tournament, under the auspices of Queen Daffodil, in the time-honoured and memory-haunted precincts of the Chiswick Garden, a garden visited years ago by Hawarth and Herbert, Salisbury and Sabine, Lindley, Sweet, Ellacombe, and many others of the former lovers of the Narcissus as a beautiful spring flower. The lecturer then pointed out that a love for these fragrant blossoms was almost as old as human history itself, and gave quotations from the Homeric "Hymn to Demeter" (B.C. 1000), and from the "Œdipus at Colonus" of Sophocles, both of whom mentioned Narcissus Tazetta for its glittering beauty and fragrance nearly 3000 years ago. It was next observed that the written history of this delectable flower showed the duality of human progress, since all the most noble objects of human interest had first of all obtained honourable notice (as in the present instance of the flower Narcissus) from the great poets, who were really seers or prophets, instinctively gifted or inspired; hence the bards had ever been, and were still, the true and reliable guide posts or milestones along the great highway of human life. Again Mr. Burbidge emphasised the fact that

the best of practical workers were successful, and their best work permanent in proportion to their natural instincts, rather than to artificial training, although of course it was conceded that apt instincts and careful training as co-existent were better than either alone. The main fact remaining that while the poets lead all the progress, the practical men and the scientists follow, and illustrate the truth and force of the poet's teaching.

The lecturer here observed that much of floral history must ever remain unknown. We may nowadays, for example, never know what was the favourite flower of Helen of Troy, or that of the great Cleopatra, Egypt's fascinating Queen, but he remarked that both these great and beautiful women must often have seen the clustered Narcissus (*N. tazetta*), and even if blue eyed Helen did not, like Persephone, stoop to gather it from the grass of the Grecian meadows, it was more than probable that incense loving Cleopatra when tired of fiery Pomegranate buds, had often worn clusters of the Narcissus in her blue black hair, just as do the wives and daughters of sunshiny Egypt and of Arabia to-day.

Turning from poetry and speculative "guesses at truth" the lecturer next emphasised the fact that Mr. W. Flinders Petrie, the celebrated Egyptologist, had recently discovered—that is to say, in 1888—at Haward in Egypt actual flowers of *Narcissus tazetta* as before alluded to; these blossoms having been deftly woven into funeral wreaths or votive garlands as long ago as the first century before the Christian era. These offerings to the honoured dead are supposed to have been made by Greek residents in Egypt, and are now preserved in the collections at Kew, where they may be seen. After the poets of Greece, however, in chronological order, come the early Greek physicians, such as Hippocrates, and at a much later date Galen, both of whom recommended the usage of the poisonous or narcotic roots of *Narcissus* for anæsthetic and medical purposes. Theophrastus of Eresus (B.C. 374-286) described the plant, and he appears to have been the first to allude to its increase by means of seeds, which he tells us "were sometimes gathered for sowing," and he further says that the fleshy roots or bulbs were sometimes planted. As a beautiful and variable wild and garden flower in southern and western Europe, in N. Africa and in the East, there is no doubt but that this flower has ever been popular; but so far as English gardens are concerned the *Narcissus* seems to have first become famous during or shortly previous to Elizabethan times, when all the greatest poets mention it, and during the same epoch both Gerard and Parkinson, the Royal herbalists of their day, illustrate or describe at least a hundred kinds, and of these old Gerard (1597-1633) especially writes that "all and every one of them" abounded in London gardens. No doubt the common yellow Daffodil of the woods and meadows in "merry England" had been popular as a flower for the making of festive wreaths or garlands long before exotic kinds were introduced and cultivated in gardens, since these are mentioned by Chaucer and other early English poets just as they were by those of ancient Greece. When the great wave of early seventeenth century culture spread over Europe choice *Narcissi* were imported from Constantinople and the Levant generally, as Gerard quaintly tells us was the fact, "along with other bulbed flowers," these latter including the then more attractive Tulip, and no doubt the Hyacinth as well.

Mr. Burbidge next alluded to the old Dutch paintings of garden flowers, dating from 1590 to 1650, and in which many kinds of *Narcissi* find portraiture. He in particular instanced one picture, now to be seen in the Louvre (No. 477)—viz., "Triomphe d'Amour," the figures by Zampieri, the wreath of flowers surrounding them being by Segher's "Le Jesuit d'Anvers," this wreath containing life size portraits of fourteen or fifteen kinds of *Narcissi* and of Daffodils, some of which are the rarities of to-day. Other pictures exist in the "Musée des arts decoratifs," in our own National Gallery, and other collections, public and private, in which these flowers find a place; and even our English Cleopatra (Queen Elizabeth) seems to have been fond of them, since in a portrait of her by Zuccherò—hanging in the Examination Hall of Trinity College, Dublin—there is a flower of the purple ringed or Poet's *Narcissus* painted in a prominent position by her side. Again, in the rare old folios and other books of the same epoch (1590-1650) many species and varieties, including several natural or wild hybrids, are illustrated either by wood engravings (mostly made at the then celebrated Plantin or Plantin-Moretus press at Antwerp), or by copper plate etchings or engravings. Especial mention was made of the works of the pre-Linnæan botanists, such as L'Obel, Dodoens, L'Ecluse (who was one of the first and best of European plant collectors), Jean Robin, Gerard, and Parkinson. Mr. Burbidge also alluded to some rare works, such as De Bry's and Sweet's "Florilegia;" the "Hortus Floridus" of Crispian Passe, jun.; "Jardin du Roy," and "Theatrum Floræ," and to the ill-fated book of drawings issued by the Rudbecks in 1702, of which only two or three copies exist, most of the issue—wood-blocks, &c.—having been burned in the great fire at Upsala in 1702. It was stated that the only complete copy of this last work is that in the Sherardian Library at the Botanical Gardens, Oxford; but there is also a copy, less perfect, in the Banksian Library, British Museum, which contains all the woodcuts illustrating the *Narcissi*. It was also stated that portraits of two of the beautiful White Spanish Daffodils were seen by Salisbury (a noted authority on these flowers about a century ago) in the palace at Fontainebleau. They were worked in coloured silks on a fire screen, said to have been given by Henry IV. to La Belle Gabrielle. Salisbury especially tells us in the "Transactions of the Royal Hort. Society," vol. i., that these representations were most natural and life like, the legend worked beneath them being "Coque-

lourdes Blancs, 1598," or the year before John Gerard, the barber surgeon, published his famous "Herbal," which, bulky as it was, gave a great impetus to the general study of botany and gardening in England for years and years after it first appeared.

Mr. Burbidge then dealt with the history of the cultivated and wild *Narcissi*, and to the now numerous and ever increasing garden hybrids and seedlings, as also to the men like Herbert, Leeds, Backhouse, and Nelson, &c., who have in the main enriched our modern gardens with the most beautiful forms and phases of this flower. A considerable and valuable portion of Mr. Burbidge's paper consisted of a chronological history of the genus from the days of Homer to those of Oscar Wilde! In this tabulated list mention is made under dates of all the principal poets, physicians, philosophers and botanists who have alluded to the odour, beauty, uses, &c., of this now fashionable flower, or with whose names it has become connected. Mr. Burbidge did not read this portion of his masterly paper, as being too long and too full of dates and detail, but as it will probably be published in the Journal of the Royal Horticultural, which will be issued as soon as possible after the Conference is over, it may then be perused by all interested in the subject on which it treats. It forms a concise and popular index to the principal men and books, and will be found handy for reference purposes.

The Rev. G. H. Engleheart, M.A., who has given much attention to



FIG. 49.—NARCISSUS MADAME DE GRAAF (see next page).

the *Narcissus poeticus* group, then gave some interesting particulars respecting the chief varieties and their relationship to the other groups, and after a short discussion the meeting terminated for the day.

On Thursday, April 17th, Mr. J. G. Baker, F.R.S., took the chair shortly after two, and opened the proceedings with a short address, referring to the botanical classification of the genus, and to the fact that with regard to the Daffodils generally they are now out of the hands of the botanists and in those of the hybridists. He mentioned that when he first began to give his attention to Daffodils they were only seen as wildings or in small numbers in gardens, and it was very satisfactory to see the progress made and the popularity they had now attained.

The Rev. Wolley Dod proceeded to review the characters, distribution, and classification of the varieties of *Narcissus pseudo-Narcissus*. Much interesting matter respecting the geography of Daffodils was given, especially with regard to their introduction to Ireland. He stated that many had been puzzled to account for the number of distinct good varieties found wild in Ireland, but he thought it was probably due to the fact that at one time Daffodils were supposed to possess some medicinal properties, and the old Italian or Spanish monks would be likely to take bulbs or obtain them from their friends for planting around their residences. With regard to the classification of the varieties he adopted the following sections:—1, Discolor, in which the perianth and corona were differently coloured. 2, Concolor, in which the distinction of colouring was not observable—that is, the perianth and corona were uniformly of some yellow tint. 3, Pallidus; 4, Albus; and 5, Muticus. Mr. Wolley Dod then mentioned the chief varieties under each section, describing their characteristics.

DAFFODILS FOR MARKET.

Cultivators present on Thursday evidently appreciated Mr. James Walker's brief, pithy, practical paper; it was listened to with the

greatest attention and greeted with much applause. Mr. Walker said that if at the last Conference in 1884 they were justified in estimating the number of Daffodils cultivated in this country at 10 millions they might safely assume that now there are 200 millions of bulbs. The question is, Will they continue to pay, as they are increasing so rapidly? There had been a fall of quite 50 per cent., and last year some were sold as low as 9d. per dozen bunches of a dozen flowers each, though it must also be said that the price had been as high as 12s. for the same number. Large quantities are now imported from the Scilly Islands, the South of France, and the Channel Islands, and there are supplies in the market from the end of January until the middle of May.

Reverting to the best varieties for market culture he said that it would be more convenient to take them in the order of the schedule list. Class 1 (Corbularia), class 7 (Triandrus), and class 9 (Graecilis, &c.) would be excluded. Commencing, therefore, with class 2, Yellow Trumpet Narcissi, he considered Emperor in size, substance, and colour one of the best; Maximus is a fine deep yellow; Golden Spur, Countess of Annesley, Tenby, Spurius, and Edward Leeds, all being approved for supplying flowers in large quantities. In class 3 (the bicolors) all the varieties are good, but he preferred Empress because it increases faster, every offset flowers, and the flowers last longer. Horsefieldi is also a valuable variety, but he gave it the second place, though in a discussion which followed some preferred that variety. Class 4 was devoted to the sulphur and white varieties of the Ajax type, and Mr. Walker stated that these are always a drag in the market, the flowers are soft and do not stand well. He named Mrs. F. W. Burbidge and cernuus pulcher as two of the best. Class 5, the incomparabilis family, is a large one, and much sifting is required to secure the best market varieties. Sir Watkin is of robust constitution, a bold flower and most useful. A capital companion is Lady Watkin; Gloria Mundi and Princess Mary are also good; Barri Conspicuous, Maurice Vilmorin, and W. Ingram; Duchess of Westminster, Madge Mathews, Gem, and Minnie Hume being selected from the Barri and Leeds type. In class 6 the only forms of market value are those included under Nelsoni. In class 8 of the poeticus group ornatus is the foremost in all respects, with poetarum and recurvus for succession. The Burbidgei varieties are not popular, but Constance, John Bain, and Mary might be grown in a limited collection. The Campernelle N. odoratus and the variety rugulosus are both useful. Amongst the doubles he specially mentioned the double N. poeticus, which he said he had never succeeded in forcing, and it was at times apt to go blind. Summarising the points with regard to the selection of varieties, Mr. Walker said it was important to secure large flowers, decided colours, and those that will last well.

In describing his method of culture which has been previously given in this journal he remarked that some varieties require much heavier soil than others. In 1881 he planted a bed of Daffodils in strong loam; after two years Capax and cernuus plenus had disappeared, while Emperor and Empress had increased fourfold. He also observed that what may be termed garden varieties generally needed a liberal supply of manure in the soil; for others it was not employed. The land is ploughed, harrowed, and rolled in preparation for planting, which is regulated by a drill. The bulbs are lifted, dried, and cleaned, and he starts planting in August with N. poeticus ornatus, all planting being finished in September. The flowers are gathered before they expand, and placed in vessels of water under glass or in sheds, and some judgment is required to gather the flowers at the right stage. With annual lifting and planting, close attention to business, and hard work, there was no need to fear competition.

The Chairman complimented Mr. Walker upon his admirable paper, and in response to his invitation to join in the discussion, Messrs. Jenkins and Fraser offered some remarks, to which the lecturer replied, and the meeting concluded with votes of thanks to the Chairman, readers of papers, and the exhibitors, proposed by the Rev. W. Wilks, who, in referring to some remarks respecting the difference in the quality of the flowers shown by nurserymen and amateurs, said that the quantity relatively grown made the difference, for while the amateurs had ten plants, perhaps the nurserymen had 10,000, and he asked if it was not much easier to cut a dozen flowers from the latter number than the former? He believed that with equal facilities amateurs would always hold their own. The vote was carried unanimously, and the Conference terminated, but the Exhibition was not closed until the following afternoon.

Amongst the varieties that merit special notice we have selected two for illustration this week, which are very distinct in character. Fig. 49, page 337, represents one of the Ajax section named Madame de Graaf, which is included amongst these "registered" by the Narcissus Committee. It belongs to the white or sulphur coloured section, and has a large flower of most elegant shape, either white or with a sulphur tint in the corona that is equally pleasing.

The other, fig. 51, page 345, is named Queen Sophia, and belongs to the incomparabilis group. It has pale yellow or sulphur perianth segments, and a much deeper coloured spreading and frilled corona, the tint being a bright shaded orange, verging in red. Both varieties are of good constitution and distinct in their respective classes.

FRUIT PROSPECTS.

I HEREWITH send you prospects of wall fruit here as indicated by the amount of flower on the various trees. This garden is divided into two divisions, and the No. 1 division is about 20 feet higher than No. 2,

which may account for the somewhat variable character of the flowering of the trees, and in No. 2 the trees are all younger and soil slightly stiffer. We have a 16 feet border around the wall, and at the base of the wall I annually put a good dressing of ashes, which not only makes it more pleasant to walk upon, but materially assists the fertility of the trees. Orchard trees are looking well. I will send notes on them next week.

South Wall, 1st Division.—Apricot Moor Park, under average; May Duke Cherry, one mass of flower; Early Orleans Plum, ditto; Doyenné du Comice Pear, good show, average; Comte de Lamy Pear, average show; Kirke's Plum, average; Ne Plus Meuris Pear, average; Winter Nelis Pear, average; Transparent Gage Plum, one mass of flower; Moor Park Apricot, under average; Glou Morceau Pear, none; Jargonelle Pear, very fine show; Autumn Bergamotte Pear, good; Reine Claude de Bavay Plum, average; May Duke Cherry, full of flower; Bigarreau Cherry, ditto; Apricot Kaisha (set), average; Marie Louise Pear, average.

West Wall, 1st Division.—Principally Plums Victoria and Magnum Bonum, of which there is only a very moderate show of flowers.

East Wall, 1st Division.—Doyenné d'Été Pear, good show; Pitmaston Duchess Pear, good; Beurré Diel Pear, average; Easter Beurré Pear, average; Williams' Bon Chrétien Pear, very full. Plums and Currants and Gooseberries on this wall have an average show of blossom.

South Wall, No. 2 Division.—Fig Brown Turkey promises well; Apricot Kaisha, bad; Peach Stirling Castle, under average; Apricot Moor Park, average; Royal George Peach, average set; Apricot, average set; Waterloo Peach, average; Dymond Peach, under average; Marie Louise Pear, good show; Knight's Monarch Pear, scarcely any; Crassane Pear, fair show; Glou Morceau Pear, one mass of flower; Nec Plus Meuris Pear, average.

East Wall, 2nd Division.—Plums: Victoria, under average; Golden Drop, under average; Jefferson, under average; Kirke's, none; Jefferson, one mass of bloom, and are two weeks earlier than last year. Pears: Citron des Carmes, one mass; Louise Bonne, ditto; Autumn Bergamotte, average; Winter Nelis, very little; Louise Bonne, average; Doyenné du Comice, few but fine; Marie Louise, good; Citron des Carmes, one mass; Josephine de Malines, under average; Jargonelle, good show. Morello Cherries on north wall promise well.

West Wall, 2nd Division.—Pears Williams' Bon Chrétien, average show; Comte de Lamy, average; Louise Bonne of Jersey, a picture (this tree measures 30 feet by 10, and from which last year I gathered 2 bushels of fine fruit); Forelle, average show; Thompson's, average; Winter Nelis, good; Duchesse d'Angoulême, one mass of flower; Catillac, ditto; Nec Plus Meuris, average; Marie Louise, average; Doyenné du Comice, average; Golden Drop Plum, above average show; Kirke's Plum; Glou Morceau Pear, average; Beurré Giffard Pear, owing to having been removed the blooms were picked off; Williams' Bon Chrétien Pear, average; Winter Nelis Pear, scarce any.

North Wall, 2nd Division.—Catillac Pear, good show. The trees on this wall are principally late Plums, which are showing very scantily, but each tree has a few dozen flowers. In this district I find the Victorias do not bear heavy crops annually. Bush Plums have lost their blossom owing to the severe frost experienced on March 24th.—W. A. COOK, *Compton Bassett Gardens, Calne, Wilts.*

SPRING FLOWERS AT HOME AND ABROAD.

NO. 2.—HYACINTHS AND TULIPS.

(Continued from page 318.)

WITH the whole stock of the largest growers in Holland under requisition for furnishing material with which to compose the fine prize groups an opportunity such as rarely occurs is provided for a comparison and selection of the best varieties. The following were noted as amongst the finest of those shown at Haarlem, and it will be seen that many of them are old favourites with us, while others are less familiar. La Grandesse was shown in splendid condition, and this beautiful Hyacinth may be classed as one of the best of the pure whites. The bells are very large, and in good examples so closely furnish the spike as to form a broad compact truss. It is not a dear variety, and everybody should grow it. Anna is another charming variety of very much the same character, though not so well known. Madame Van der Hoop has larger bells of great substance; but the truss is not quite so good as in the two other whites named. Dr. Windthorst is a new white of considerable beauty, with a remarkably well-furnished and symmetrical truss, and is well worth looking after for exhibition purposes. Amongst the shaded white or blush-coloured varieties Princess Amalia holds a very high place. The bells are large and of good substance, the truss compact, and the colour a very pleasing soft blush tint. This is a really charming Hyacinth. Grandeur à Merveille is a better known variety of somewhat similar character with large bells and truss, cheap and useful. The remarkable examples of the new variety Jacques have been previously alluded to. One of these measured 10 inches by 4½, and though having the fault of being a little loose, it is without doubt a striking and effective Hyacinth.

Turning to the pink and rose section, we have in Gigantea a very handsome and useful variety, usually throwing a good spike under ordinary cultivation, and very fine for showing; it is also cheap. Noble par Mérite, pale pink, is one of the best of the doubles, having a more compact truss than the majority of them possess. Le Grand Concourant,

another double, resembles the last-named in hue. The truss is longer, but hardly so well furnished. Koh-i-Noor, rose, semi-double, is one of the best Hyacinths grown, having a beautifully symmetrical and well-furnished spike of bloom, though not of the largest size. Rubra maxima, soft pink, is another variety of considerable merit. Fabiola, light rose, deserves mention. Prince of Orange, bright pink, double, is a fine Hyacinth, with a very compact truss of medium size. Finally, there is Cardinal Wiseman, rose, a magnificent new variety, and a most valuable addition to the exhibition Hyacinths. It has a remarkably broad and dense truss, and is highly effective. The red, scarlet, and crimson section comprise some splendid varieties. Solfaterre is a warm glowing red with a medium-sized truss. Von Schilder is a grand red, with a deep stripe down the centre of each petal, the truss densely furnished, many examples measuring 8 inches by 4½. It is of dwarf, sturdy habit, and consistently good. Vuurbaak, shining crimson, has a small but well-formed truss; and Roi des Belges is also somewhat small, though remarkably rich and striking in colour. Lord Macaulay, clear pale red, and Etna, bright red, are useful varieties.

The blues, dark and light, are very numerous. Perhaps the best of the former is King of the Blues, a really splendid Hyacinth with a perfectly formed and furnished truss. This variety can usually be recognised at a glance among many others by its beautifully moulded form. William III. is one of the very dark (nearly black) varieties, and may be classed as one of the best of them, Masterpiece and The Sultan also being good. There were some excellent specimens of the latter at Haarlem, the best measuring 8½ inches by 4½ inches. Marie is an old and useful dark blue, cheap and good. Laurens Koster, double, somewhat resembles King of the Blues in colour, and has a good truss. Lord Derby is one of the best of the light blues, the bells being large and the truss very broad, but somewhat short. Czar Peter is a very fine and useful variety. Queen of the Blues is a beautiful Hyacinth with a well furnished truss of medium size, clear pale blue. Pieneman has already been referred to. The spike is long and the bells of the largest size, but loose and drooping. Grand Maître is another large variety with a similar defect. Van Speyk, double, has a well formed truss. Two of the best yellows are Obélisque, with a long compact truss, and King of Yellows, closer, but hardly so good in colour. To this list of good varieties, by no means complete, yet affording material for a useful collection, must be added one differing in colour from them all, but equalled by few for beauty of form. Its name is Laura, the colour a soft rosy mauve, and the truss perfection as regards form and regularity.

A few words may advantageously be devoted to the Tulips. Happily for the honour of England a very different tale can be told of the comparative merits of these flowers. We are as far ahead of the Dutch in respect to Tulips as they are in front of us with Hyacinths. Evidently the peculiar wants of the former have not been studied so carefully as those of the latter at Haarlem. Good though many of the Dutch plants undoubtedly were, they were distinctly inferior to the fine specimens of Mr. Douglas at Regent's Park. The latter, though few, were splendid examples, being very dwarf and with remarkably large flowers. A great fault of the Dutch Tulips was that they were drawn, and the flowers consequently somewhat small. Mr. Douglas's plants were fully 6 inches dwarfer than the Dutch, and the flowers greatly exceeded them in size. Some of the best Tulips at Haarlem were exhibited by Messrs. F. & H. Van Waveren, and as they are only beginners at exhibiting they may be expected to show considerable improvement with more experience, especially as they hold very large stocks of bulbs.

The following are a selection of the best Tulips, commencing with the singles:—Cramoisie Pourpre is a beautiful rose-coloured variety resembling Proserpine, but brighter in colour and with smaller flowers. Royal Standard (silver), flaked crimson and white, and Royal Standard (gold), flaked scarlet and yellow, are both attractive varieties, the latter being very distinct. Rose Gris-de-lin, delicate rose suffused with white, is extremely pretty. L'Immaculée, pure white, tinged with lemon at the base, has medium-sized well-formed flowers, and ranks as one of the best. Keizer's Kroon is a well-known large variety, crimson, with broad bands of yellow, very cheap and useful. Ophir d'Or (Mon Trésor) is a magnificent Tulip, with very large rich yellow flowers, splendid for exhibition, far the best of all the yellows. This was finely shown at Haarlem. Nelly, pure white, with large flowers of good shape, is excellent, and very effective is the handsome rose variety Proserpine. One of the most popular Tulips grown. La Riante, medium-sized, well-formed flowers, base greyish, upper portion delicate rose, and Roi Pépin, crimson and white, somewhat small, are very attractive Tulips. Joost van Vondel, crimson flaked with white, is a large, handsome, and very useful variety, well known to most British growers. One of the most distinct of the numerous varieties exhibited at Haarlem was Pink Beauty, white, deeply suffused at the edges with pink, flower of medium size and excellent form. Delicatissima, white, was also pleasing. La Belle Alliance, rich crimson, is, though one of the oldest and cheapest varieties, likewise one of the most effective and useful. Joost van Vondel, white variety, is similar in form and size to the other. Queen of the Netherlands, which was honoured as a deserving novelty, is an exquisitely beautiful Tulip with very large flowers, white, with a faint blush tinge. It was exhibited by the well-known firm of M. Van Waveren and Sons. Bride of Haarlem, crimson flaked with white, and Rosa Mundi, blush flaked, are, though small, extremely pretty. Vermilion Brilliant, bright scarlet, is a very useful and popular Tulip. Wouwermans, claret, and Van der Neer, deep mauve, are both large and of good form, and these are amongst the cheapest varieties. Last may be mentioned Chrysolora, a bright yellow of medium size.

One of the most beautiful of the doubles is Salvator Rosa, delicate rose, very pleasing in colour and handsome in form. Couronne d'Or, canary yellow, large and of excellent shape, is the best of its colour, though Tournesol Yellow is large and effective, the red and yellow form of the latter being also good. Purple Crown is very fine in colour, but the flowers are somewhat small. La Candeur, white, is a cheap, useful, and very effective variety. Murillo, white, tinged with rose, is attractive, and very useful is the late variety, Mariage de Ma Fille, white, feathered with crimson. Le Blason, rose, and Raphael, fine light rose, are the last two to be mentioned, the latter being one of the most beautiful of all double Tulips. Both the double and single varieties named, as also the Hyacinths, have been carefully selected from a very large number of varieties, and those wishing to have a good collection of these beautiful spring bulbs will not err by choosing from amongst them.—W. P. WRIGHT.

(To be continued.)

THE CARNATION.

[PRIZES for essays on the Carnation having been offered through the Ealing Gardeners' Improvement Society, Mr. Charles Turner, the adjudicator, awarded the first prize to the following useful contribution of Mr. David Cooper, foreman, Gunnersbury House, Acton.]

AMONG the multiplicity of flowers now under cultivation, whether for beauty or fragrance, I do not hesitate to say that the Carnation stands pre-eminent. The immense number and strong contrast of its different shades and colour, the rich green hue of its "grass," or foliage, the stately habit of its growth, and the sweetness of its perfume, afford attractions to all its admirers. Combined with the above sterling qualities, the usefulness of the blooms when in a cut state, either for adornment of the drawing-room, or for bouquets and buttonholes, or when grown in pots for the decoration of the conservatory and greenhouse, or as a bedding plant, it would not be wrong to say that it should be prominently placed in the first rank of all decorative flowering plants. The Carnation has a decided advantage over almost all other flowers—namely, the length of time it is in bloom, and the easy mode of cultivation in an ordinary way; also by special care and treatment and judicious selection of varieties it can be brought into bloom all the year round. Its popularity is unrivalled, for we should hardly find one garden where the Carnation is not grown.

It is said to have been first introduced into England from Italy, the date being questionable, and to have derived its name in the English language from its colour, pink, Carnation, or flesh colour. It was also called Clove Gilliflower, from its flowering in July, then known under the name of Caryophyllum, or walnut leaf (folium nucis), but why I am unable to say. The Carnation was also called Coronarium, from its having been used for the dressing of the head. It was afterwards given the appellation of Dianthus, flos nobilis, fine or superior flower, but is now termed Dianthus Caryophyllus.

CLASSIFICATION.

The Carnation is usually divided into several classes—namely, Flake, Bizarre, and Sells, besides Picotees, which are generally classed by themselves, each having varieties of its own. Flakes are distinguished by their having a pure ground flaked with any one colour, as scarlet, purple, and pink flaked; Bizarre meaning a mixture of colour, and having more or not less than three distinct colours, and is known by which shade predominates, as scarlet, crimson, and purple bizarre. Sells are characterised by being one decided colour, of which there are several sorts. Picotee signifies picked or spotted, hence they are distinguished by the colour of their edge. In addition to the above there are the well-known tree, or perpetual-flowering varieties, undoubtedly the most useful on account of their free and constant flowering propensities, and coming into bloom in the dull time of the year when other flowers are more scarce. This variety I intend to treat upon specially, but as I have also to deal with cultivation I will proceed with these few remarks to describe it to the best of my ability.

PROPAGATION.

This can be done either by layering (pipings or cuttings) or from seed. I will now commence with the latter—seed. If not inclined to save seed it can be easily obtained from any respectable seedsmen, but to insure a good strain it should be purchased from one who makes it a specialty. Propagating by seed is very interesting, as sometimes good and distinct varieties are secured, but there is always a certain amount of disappointment as regards worthless blooms. Seeds may be sown as soon as they are ripe or in April (the latter is preferable, as the young plants can be grown on and planted out straight away) in pans well-drained. The compost should consist of light rich loam and leaf mould passed through a sieve and well mixed with a good proportion of sand. Press it down moderately firm and level to within an inch of the top,

Then give it a good soaking through a fine rose, which should be done a few hours previous to sowing to allow the soil to settle. If these and the following instructions are carried out more water will hardly be required until the seeds are germinated. Scatter the seeds evenly and just cover with a little of the soil; give it another slight sprinkle, cover the pan with a piece of glass, plunge into heat of about 65°, and shade from the sun. As soon as the seedlings appear they should be taken out and placed in a warm greenhouse or pit near the glass, where they will get sufficient heat to prevent their becoming drawn. As soon as they are large enough to handle prick them out into pans or boxes, carefully water and shade for a few days. In about a week or ten days they will have made a little root; then gradually harden off and place in a cold frame fully exposed to the sun with plenty of air; look after them for water, and on no account should they be allowed to get dry. When fairly established, or when they have made about six or seven leaves, plant them out into well prepared nursery beds, or trial beds I should call them, in a sheltered situation. Make the soil very fine on the surface and plant them about 10 inches apart, where they should remain until they have flowered, which will be the following June or July, when they should be carefully looked over and special varieties marked (should you be fortunate enough to secure any), and anything worth keeping might then be propagated, and all useless sorts pulled up and thrown away. In the winter when the weather is sharp they will require protection; nothing would be better than box frames and lights, not only to protect them from frosts, but to keep off snow and heavy rains, of which if they get too much, which is the case during the present season, they will be liable to a disease known as the spot. If frames and lights are not available a skeleton frame might be made over them with quartering of wood and mats or canvas used when necessary.

Cuttings.—This mode of propagation ought to be commenced as soon as they can be taken, which in ordinary seasons would be about the beginning of July, before they get too hard and woody from exposure to the scorching sun, which renders them less liable to root so readily as when in a more tender state. This would apply more to named varieties and those of which the quality of the blooms is certain, as doubtless some will not be sufficiently expanded to decide by the time mentioned above, and besides some are apt to run in colour, and in that case it would be better to leave these for the more certain method of propagating by layering them. When taking the cuttings care should be exercised by getting them where they appear too thick or too high up the stem where they could not be easily got at for layering, and not to damage or disfigure the plant just as it is coming into bloom. The most certain method of propagating by cuttings, I consider, is by making up a slight hotbed in a pit, or a half-spent one would answer as well, where another crop had been previously taken from. If using the latter remove all the old soil from the surface and cover the bed to a depth of about 4 or 5 inches with the following compost—One part of loam, one part leaf mould, and a little horse dung (not from old Mushroom beds, as it is liable to cause fungus), then add about one part of river or well washed road sand where obtainable, if not use silver sand, well mix the whole and pass it through a fine sieve. The soil should be far enough away from the glass to admit handlights, which should be placed close together so that the cuttings will be enclosed in two separate cases. If this method is adopted the chances of success will be much greater, as the air will be excluded to a greater extent, consequently less water and less shade will be required, and not so likely to damp off. Press the surface evenly and sprinkle with water through a fine rose, then insert the cuttings in rows pressed in firmly and about an inch deep not too close together, say, about 2 inches apart according to their size, then give a good watering to settle the soil about them. Put the outside lights on and shade, leaving a little air on until they are quite dry; be careful on this point, or they will be almost sure to damp off, then place the tops of the handlights on, keep close and not remove for a fortnight at least if they are thriving all right. In preparing the cuttings they should be cut horizontally with a sharp knife close below the joint, and the sheath that covers the joint should be carefully peeled off with the knife—not pulled off with the thumb and finger. Should the weather be very hot and dry the handlights may be sprinkled outside occasionally. Here I might say the shading used should be of some light material, and only used when the sun is out. After the above mentioned time the lights may be taken off sometimes of a morning, to dry the glass and see if any of the cuttings appear to be rotten, if so pull them up, but I do not think any danger need be apprehended on that score. In about six weeks they should be fairly well rooted, then the handlights might be dispensed with altogether. In another week afterwards they will be ready for potting into 60's, one or two

in a pot. Place them back in the same pit and keep rather close for a week or so, gradually allowing more air afterwards, when they might be removed outside and fully exposed to the sun until they are taken to their winter quarters.

(To be continued.)



EVENTS OF THE WEEK.—The second of the Shows at the Royal Aquarium, Westminster, will be held on Tuesday, April 29th, and will be chiefly devoted to Auriculas. The Executive Committee of the British Fruit Growers' Association will meet in the Horticultural Club Room, Hotel Windsor, Victoria Street, S.W., on Thursday, May 1st, at 5 P.M. The following are the chief of the Society meetings: The Royal on Thursday, April 24th, at 4.30 P.M.; the Quekett Club at 8 P.M. on Friday, April 25th; the Royal Botanic Society at 3.45 P.M. on April 26th; the Royal Geographical Society at 8.30 P.M. on Monday, April 28th; and the Society of Arts on Wednesday, April 30th, at 8 P.M.

— **THE WEATHER IN THE SOUTH** was unpleasantly characterised for several days at the end of last week by keen easterly winds which, in some cases, seem to have damaged the fruit blossom far more than the recent frosts. Friday was exceedingly cold for the time of year, but the wind changed to a westerly direction with a little rain and a slightly higher temperature. Pears are showing fairly well in some cases, in others there is not half a crop. Apples and Plums are not very promising according to reports from several districts.

— **THE WEATHER IN THE NORTH.**—April 14th to 21st. The week has been marked by prevailing easterly winds, a hard ungenial atmosphere; no frost except 2° on morning of 15th, and in the latter part but little sunshine. This morning, with slightly falling barometer, we have promise of a welcome shower. A fine "tid" has been got for Potato planting, and garden and farm work is satisfactorily forward in all departments.—B. D., *S. Perthshire*.

— **THE WILDSMITH MEMORIAL ORPHAN FUND.**—We are glad to state that by a subscription of two guineas by the Horticultural Club the whole amount required for the election of the Wildsmith Orphan has been raised.

— **SELAGINELLA EMILIANA.**—As a dwarf, compact growing, dense green plant for decorating purposes, such as to hide larger pots in the front of groups of plants, or as an edging in the stove or warm fernery, capital plants can be grown in 3 and 4-inch pots. This Selaginella grows about 6 inches high. The edges are crested, and altogether it is very attractive. By dividing the roots a large stock may quickly be obtained.—S.

— **THE COMMITTEE OF THE INHABITANTS OF FINSBURY SQUARE** have accepted a design by Crompton & Fawkes, Horticultural Builders of Chelmsford, for a pavilion for the centre of the square. The building will be 24 feet by 18 feet, and about 40 feet high, cruciform on plan with ornamental gables facing four ways, surmounted by an octagon lantern, in which a four dial clock will probably be placed at a future time. The base will be red rubbed brickwork, and the sides will be glazed for the remainder of the height. The roof will be covered by red tiles. It is contemplated that the building will be opened the first week in June. All the details have been designed by Mr. Fawkes.

— **THE HORTICULTURAL EXHIBITION AT BERLIN, APRIL 25TH-MAY 5TH.**—On Friday, April 25th, the great horticultural Exhibition at Berlin will be opened. It is said there will be a great quantity of fine plants and products from Germany, Belgium, the Netherlands, Italy, Austria, England, &c.; but especial features will be the architectural and art display. The chief purpose is to show how horticulture may be united with architecture and art, therefore decorated rooms, balconies, verandahs, staircases, &c., will be shown. Nearly 600 exhibitors have entered, who require 7200 square metres of space, 5600 of which are covered; 29,000 mark prizes, and many honorary and governmental prizes are offered. The Emperor, who is patron of the Horticultural Society of Prussia, has given a grand gold medal; the Minister

of Agriculture, Honorary President of the Exhibition, 500 marks. Science will be represented in its connection with horticultural practice.

— THE BROCKHAM ROSE ASSOCIATION have accepted the invitation of Robert Barclay, Esq., to hold their Show on July 2nd at Bury Hill, near Dorking.

— FRUIT AS FOOD AND DRINK.—The Secretary of the Vegetarian Society, Memorial Hall, Farringdon Street, London, E.C., desires us to state that deputations will be sent on application, to gardeners' meetings and horticultural societies free of charge, at which it may be desirable to discuss the subject.

— GARDENING APPOINTMENTS.—Mr. John Justice, foreman, Witley Court Gardens, has been appointed head gardener to J. S. Howitt, Esq., The Firs, Norton, Worcester. Mr. A. J. Long has left Westwood Park, Droitwich, where he was head gardener for five years, and has been engaged by J. Spiller, Esq., Compton House, Stockbridge, Hants.

— RAILWAY CHARGES FOR VEGETABLES.—This day I sent in a basket to London, via North Wall, three heads of Broccoli, for which I paid charges 5s. This seems such an enormous price for a basket of vegetables containing only three heads as stated. I have often been to Market Lane to dine, and the quantity would be partaken of by three ordinary feeders. Surely the charges are extraordinary.—W. BAYLOR HARTLAND, *Cork*.

— ROSE CATALOGUE COMMENTARY.—I am very much obliged to "A. C." for his too favourable mention of my paper, which I hardly thought deserved an elaborate peroration. I meant it to have appeared earlier, in time to assist novices in the selection of varieties, and fear that it would be of little use published separately. Lists of Roses become quite out of date in a year or two, as it is of the newer sorts especially that the average Rose-grower desires information.—W. R. RAILLEM.

— THE schedule of the BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY (thirty-eighth season) is just to hand, and announces that Shows will be held on July 9th and 10th (Roses), and on September 10th and 11th. The Exhibitions will be held in the Royal Pavilion, Brighton, and in conjunction with the last named on September 11th, at 4 P.M., a Conference will be held by the British Fruit Growers' Association, Grapes and Tomatoes being the special features. Eighty classes are provided, numerous prizes being offered for fruits.

— SWEET PEAS IN SPRING.—I have sent you a few Sweet Pea flowers to show how the season of these useful flowering things may be prolonged. We cut the first on the 10th of March. The pink variety is the Princess Beatrice, which is in great demand, and will ultimately prove valuable for cutting purposes.—J. T. EBBUTT, *Winslade Gardens, Exeter*. [The flowers received were extremely fresh, bright, varied, and fragrant, and their usefulness at this season cannot be over-estimated. We shall be glad if Mr. Ebbutt will describe his method of culture.]

— PROSPECTS OF FRUIT IN THE BOURNEMOUTH DISTRICT.—The soil of Bournemouth is not very favourable to the production of fruit, but some fair samples are grown in the neighbourhood. There is a fair amount of blossom on Cherries, Pears, and Apples, but on Plums it is scarce. Some of the trees are well covered, but the birds have been very destructive. The following are a few sorts which are showing best:—Pears, Jargone'le, Beurré d'Amanlis, Marie Louise, Louise Bonne of Jersey, and Williams' Bon Chrétien; Apples, Ribston Pippin, King of the Pippins, Cockle's Pippin, Keswick Codlin, and Hawthornden. Small fruits are looking well.

— VEGETATION GENERALLY.—We have experienced a long spell of dry weather with north-east and easterly winds, and Euonymus which grows with us all winter have suffered in exposed places. A welcome change took place on April 15th—warm showers and rain all day Thursday. The beautiful pink Ribes will soon be over, but shrubberies are gay with Berberies. Forsythia viridissima, the white Andromedas, Laurustinus, Tulips, Wallflowers, Aubrietias, Arabis, Pansies, Polyanthus, and Myosotis are flowering well in the borders. Grass is growing freely, and the scythe and machines have been at work for some time.—J. B. S.

— TWO GOOD OUTDOOR HYACINTHS.—A Hyacinth seldom cultivated out of doors, yet most suitable for the purpose, is Grand Lilas, single-flowered, porcelain-lilac—an uncommon colour, and the spikes of bloom are almost self-supporting, a great point in the favour of this variety. We have it planted in the front of Rose borders and upon the

grass, in clumps of about five bulbs each. Another good variety is the pure white double flowered La Tour d'Auvergne. Seven years ago we planted in the herbaceous borders the bulbs which had previously flowered in pots. Every year since they have flowered well, and are as good this year as they were the first season in pots. I might also say that our soil is cold and wet in the winter, consequently not the most favourable for bulb culture. Beyond taking up the bulbs once when the border was trenched two years ago, they have not been disturbed.—E. M.

— NARCISSUS BULBOCODIUM.—Those who have not grown this yellow Hoop Petticoat Narcissus in pots would do well to procure a few bulbs, in the autumn potting half a dozen in a 4-inch pot, giving them the usual bulb treatment, and at this time next year reap the reward of the slight outlay in the possession of rich masses of yellow flowers which will be produced. For the front of the stages in the conservatory or as edgings to groups in any other structure, arranged on a base of small Maidenhair Ferns or Selaginella Kraussiana, the golden flowers show to the greatest advantage for cutting; intermixed with its own foliage in small vases a pleasing effect is produced.—E.

— WHERE ordinary varieties of HIPPEASTRUMS (AMARYLLISES) are simply grown for decorative work greater success may be obtained by allowing the bulbs to stay in the same pots for two or three years, or even four sometimes, without potting, than by annually disturbing their roots, which I know is the general plan of cultivation. Where 8 and 9-inch pots are employed the offsets, through not being disturbed or separated from the parent bulb, will throw up flower spikes. When plants in the pots named develop from two to half a dozen flower heads, such are valuable for conservatory or house decoration, giving a display of brightly coloured flowers, which contrast so well with white flowers such as Lilies, Spiræas and Deutzias. One point in their cultivation is not to allow the roots to be dried too much. The foliage should never be allowed to wither. Those plants which carry some green leaves all through the winter succeed the best. Liberal feeding when growth is active is the main point to consider. Nothing is better than liquid manure from the cowhouse.—M.

— A CAPITAL plant is CHOISYA TERNATA for covering a bare wall in a cool house, or it will succeed in the south of England planted at the base of a south wall. In such a position it flowers amazingly where the growth is not allowed to become so thick as to prevent the shoots being thoroughly ripened. The flowers are somewhat like Orange-flowers in their individual form. The perfume is pleasant without being too powerful. The foliage is particularly a glossy dark green, and when bruised with the hand emits an agreeable perfume. The leaves are often used instead of Fern fronds for the cut flower vases, and they last fresh some time. Cuttings strike readily if taken with a heel any time when the new growth is nearly ripened. A sandy soil, gentle bottom heat, and shade from bright sun are all that are needed to ensure success; the plants quickly grow into a good size. The roots at all times must be kept moist. While growth is being made abundance of water must be supplied both to the roots and over the foliage, or red spider will gain a hold.—S. P.

— THE SPARROW PEST.—I am afraid your correspondent "B." will only be wasting valuable time, and running a great risk of killing something he does not wish to lose, in trying to poison sparrows and other birds when they have attained to such numbers as to become a pest, which is no doubt the case in many places, especially near the homes of some of our great game preservers. The proper remedy is not far to seek, and to find it out we must look for the cause of the pest. Nature herself provides the requisite balance in all things, and if left to herself will not for any length of time trouble us with a pest, even of sparrows. The cause of the smaller birds increasing at such a rapid rate is the wanton manner in which gamekeepers and others shoot or otherwise destroy the hawk and the cuckoo and similar birds which prey either upon the eggs or bodies of the smaller birds, and thus Nature is deprived of the means most wisely provided for keeping down the numbers of those birds, which would otherwise increase too rapidly. The worst part of the matter is that such a course is purely a one-sided business, for whoever hear of the squire or nobleman who directs his gamekeeper to kill the larger birds of prey having any thought for the loss he is thus causing to the poor farmer or gardener from the absence of those birds of prey, which are actually the greatest protectors of his crops? All animal, bird, or insect pests may be traced more or less to the absence of their natural enemies, and if they can only be provided in sufficient numbers there is never any doubt as to what the result will

be. Would Australia have been visited with a rabbit pest if a couple of healthy weasels had been imported with the first few couples of rabbits?—A. T. MARSTON.

— THE fortnightly meeting of the BOURNEMOUTH GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION was held on Wednesday, April 16th. Mr. G. Peel, gardener, Studley, occupied the chair, and there was a good attendance of the members to hear Mr. J. B. Stevenson, the Secretary, read his paper entitled, "Notes on a Trip to Jersey." The reader briefly described the trip across the Channel, and also some of the most interesting places visited, notably the famed Bagot Vineyard of Mr. Bashford, where there are upwards of three miles of glass houses erected for the cultivation of Grapes, Tomatoes, Melons, and early Potatoes. The mode of producing young Vines for planting in the houses was described, and in referring to the skill of the Jersey Grape thinners, he mentioned that one man thinned a house of Black Hamburg Grapes in two and a quarter days, the crop weighing about 800 lbs., also a house of Gros Colmans, weighing between 600 and 700 lbs. in the same time; also in a contest where three men respectively thinned 365, 360, and 349 bunches each, the variety being Gros Colman, and the bunches averaging 1½ lb. each. Humorous reference was made to the great number of Jersey Cabbages, and it was mentioned that for a prize watch a Cabbage over 20 feet long was shown, and the reader produced for the members' inspection one about 10 feet long just coming into flower. Mr. Stevenson received a hearty vote of thanks for his paper. Mr. Ward, gardener, Kempsey, showed a specimen Gloxinia, and a fine plant of *Dendrobium thyrsiflorum*; and Mr. Sbare, gardener, Higham, some excellent *Calceolarias*. A hearty vote of thanks to the Chairman concluded the meeting.

— ROYAL METEOROLOGICAL SOCIETY.—The monthly meeting of this Society was held on Wednesday evening, the 16th instant, at the Institution of Civil Engineers, 25, Great George Street, Westminster; Mr. Baldwin Latham, F.G.S., President, in the chair. The Marquis of Gallidoro and J. M. Veevers were elected Fellows of the Society. The following papers were read:—1, "The Cold Period at the Beginning of March, 1890," by Mr. C. Harding, F.R.Met.Soc. At the commencement of the month a rather heavy fall of snow was experienced in many parts of England, and very cold weather set in over the midland, eastern, and southern districts, the temperature on the 3rd and 4th falling to a lower point than at any in the previous winter. The lowest authentic thermometer readings, in approved screens, were 5° at Beddington, 6° at Kenley in Surrey and Hillington in Norfolk, 7° at Chelmsford and Beckenham, 8° at Addiscombe, 9° at Reigate and Brockham, and 10° in many part of Kent and Surrey. At Greenwich Observatory the thermometer registered 13°, which has only once been equalled in March during the last hundred years, the same reading having occurred on March 14th, 1845. During the last half century the temperature in March has only previously fallen below 20° in three years, whilst during the whole winter so low a temperature has only occurred in eight years. 2, "Note on the Whirlwind which Occurred at Fulford, near York, March 8th, 1890," by Mr. J. E. Clark, B.A., B.Sc. A sharp and heavy thunderstorm occurred at York about 2.30 P.M. At the same time, or shortly afterwards, a whirlwind passed a little to the south of the city from Bishopthorpe to Heslington, a distance of about four miles, its width varying from 3 or 4 to 250 yards. The author made a careful survey of the track of the whirlwind, and described the damage done by it to trees, buildings, &c. 3, "On the Possibility of Forecasting the Weather by Means of Monthly Averages," by Mr. A. E. Watson, B.A., F.R.Met.Soc. The author is of opinion that the average values of meteorological phenomena are constant quantities, and that any variation from them is sure to be met by a compensating variation in the opposite direction.

THE PROPOSED HALL OF HORTICULTURE.

A FEW weeks ago circulars were issued to nurserymen and others engaged in business connected with horticulture inviting their attendance at a meeting and their co-operation in raising the necessary amount of money for the purpose indicated. The meeting was held in the Council room of the Royal Horticultural Society on Tuesday last, the President, Sir Trevor Lawrence, Bart., M.P., in the chair.

The PRESIDENT in opening the proceedings said, considering the large number of invitations posted he had hoped to see a more crowded meeting. As had been many times stated the present arrangements for holding the shows and meetings of the Society were temporary, and he freely admitted unsatisfactory. He believed that if the Show then being held in the Drill Hall were in a suitable building in a central position the public of London would flock to admire it. A central hall

had become a necessity, and one favourably situated would be appreciated by amateurs and prove of benefit to the trade in which many present were engaged. It was thought, and still hoped, that the project would be taken up by the trade and carried to a successful issue. He feared it was not fully understood. No money was asked to be given, but only lent for a time, with its ultimate and certain repayment. The names of the subscribers he thought guaranteed the stability of the undertaking, and not the Royal Horticultural Society but the trustees would be responsible for the repayments. They wanted a thoroughly satisfactory building in a commanding position, and he felt that with the earnest co-operation of all interested in horticulture the most desirable object would be achieved.

BARON SCHRÖDER, on rising, thanked those present for their attendance, which was not, however, so large as he wished to see. There were two main points to consider—first, the monetary; second, the site for operations. In respect to the former, the Royal Horticultural Society was incapable of extricating itself from the present hall, which, for the purpose of exhibitions, he could only compare to a dust-bin; but if horticulturists would join him, they might have a hall worthy of the Society and of horticulture. He did not ask for any money as a gift, nor for the payment of any money even as a loan till £40,000 were promised. He only asked the public, including the trade, to have confidence in the trustees, and offer to lend money for a time, and the greater the amount the quicker would be the repayments. It was a sound, genuine financial transaction, or it would not have his countenance and support. Amongst his friends who were not pecuniarily interested he had got promises of £6000. As soon as he explained the scheme to the Duke of Westminster he at once perceived its safety, and that it was of national importance, and immediately wrote himself down for £1000. That might reassure all who had any lurking doubt as to the thorough soundness of the principles on which they were acting. The best site for the hall was the Thames Embankment. It was an important public highway, and floral exhibitions there would be largely attended. Persons pent up in rooms and offices longed for the relief that flowers and gardens afforded. He believed that with a suitable building the income of the Society would be doubled, and a recognised centre for horticulturists and their products would be bound to give a great impetus to trade. The hall would not be for the Royal Horticultural Society alone, but would be of service to other societies associated therewith. In connection with the building he would like to see a permanent exhibition of implements, seeds, shrubs, &c., and supporters would have claims for positions. But he desired to say plainly that the requisite sum could not be had unless the trade joined heartily in the endeavour to obtain a good portion among themselves, their friends, and customers. When the plan was understood he believed many would give their help gladly. Then the question arose as to how lenders would get their money back. Bonds would be given for every penny, to be drawn annually, the Royal Horticultural Society having no power to interfere, the trustees being solely responsible; and a suitable site and building being obtained they would return the money in full to the lenders. Then, when all had been paid, the hall would belong to the Society, in which, he said, a good deal of life remained, and if better circumstanced it would increase in activity, do more in the promotion of horticulture, give advice on all subjects within its sphere, and become what it ought to be, a power in the country. The scheme was now before them, and he wanted them to feel as he felt, that it would be a disgrace for them to die without providing a hall of horticulture.

MR. W. BULL, in rising to propose a resolution, said they as horticulturists were certainly in an anomalous position, for in no country in Europe was gardening so well and extensively practised, yet in the first city in Europe they had no suitable place in which their work could be represented. A hall would enlist wider sympathy with their work and gain new supporters. He appealed to all to help on towards accomplishing the object in view, but without the cordial assistance of the trade the scheme would fail. He moved a resolution to the following effect:—"That the representatives of the trade here present cordially approve of the scheme, and pledge themselves to support it."

MR. BUNYARD, as a country nurseryman, seconded, and took occasion to ask if the whole of the £40,000 was not forthcoming, if a lesser sum could not be applied in providing such a building as the means would allow?

BARON SCHRÖDER gave an emphatic "no" to the proposition, and said it would be a great mistake to start with any less sum. If he got £50,000 all the better, and he could pay it back sooner. All might perhaps not quite understand that, but it was a fact; he would have nothing to do with unsound finance, and would rather abandon the scheme than "fiddle about" with money.

MR. GEORGE PAUL said he did not understand the scheme at first; indeed, it nearly took his breath away. But he understood it now, and saw it was sound and good. It was not for the Royal Horticultural Society alone, but such a building as they hoped to provide would be available for the transaction of the business of the Gardeners' Royal Benevolent Institution, the Gardeners' Orphan Fund, trade meetings, and all agencies connected with gardening; and he thought the trade might induce their friends and customers to help forward the movement materially.

MR. BRUCE FINDLAY believed the movement would end successfully because Baron Schröder was at the head of it. The effort was laudable, and he should have pleasure in doing all he could for it in the Manchester district. Place it on broad grounds of public service for

the public benefit, and the money ought to be forthcoming before the end of the year; for what, he asked, is a loan of £40,000 among so many?

MR. SHERWOOD said they could not too fully make known the real nature of the scheme. When he mentioned it to a friend he was offered a gift of £5, but when he explained it was not a gift that he sought, but a loan, his friend at once put down his name for £50.

The proceedings were animated throughout, the speakers frequently applauded, the resolution passed unanimously, and a Committee, composed mainly of provincial nurserymen and seedsmen, appointed to carry it out. The nomination of the Committee was proposed by Mr. H. Williams, and seconded by Mr. J. Cheal.

the late Dr. Horner, F.R.S., of Hull, also an ardent florist. He practised there for many years as a physician, and rose to high eminence in his profession, but always found time from his arduous duties to cultivate the Tulip, Auricula, Pink, Carnation, Ranunculus, &c., to lecture on botany, and write interesting articles for the gardening papers and magazines. The Rev. F. D. Horner was born in the same year as myself, 1837, but a few months earlier, on the day of the Carnation Show. In his early years, when a mere boy, he used to attend the flower shows with his father, and he has told us that Tulips and Auriculas took the place of the usual playthings

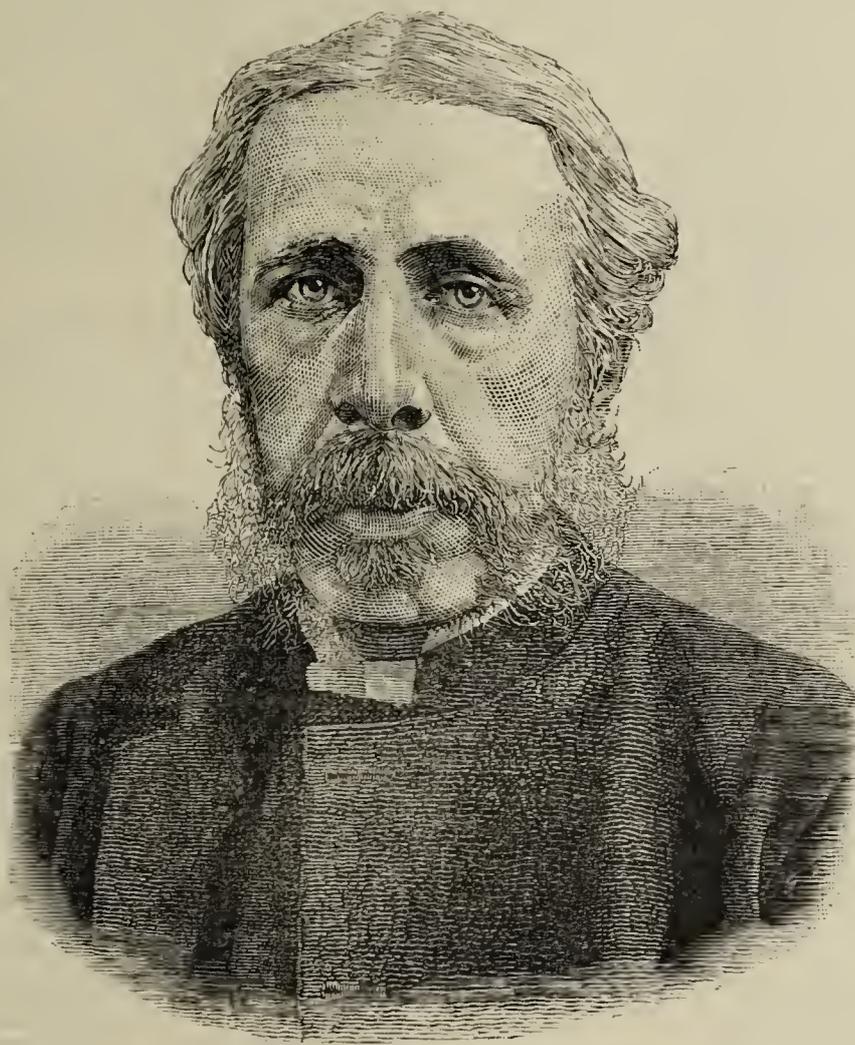


FIG. 50.—THE REV. F. D. HORNER.

THE REV. F. D. HORNER.

[WE have great pleasure in publishing the portrait, from a recent photograph, of this earnest, genial, and successful florist. He may be fairly regarded as the premier raiser and cultivator of Auriculas, and the moment seems opportune for the representation. The following appropriate references by Mr. Horner's friend and fellow-worker in the cause of floriculture will be acceptable to our readers.]

The Rev. F. D. Horner, whose portrait is published in the present number, is well fitted to be a leader of floriculture. He is a son of

of boys of his age, and he cannot remember the time when he had not some share in aiding his father to cultivate the floral treasures of that notable garden in Hull. Dr. Horner had also in his garden a choice collection of Cacti, Echinocacti, and other curious succulent plants; and thus there grew in the mind of our friend, with the love of Auriculas and Tulips, a longing to cultivate the quaint and curious productions of Nature. The time came for Mr. Horner to leave the home of his early years. He held various curacies in Yorkshire, and also for a short time in Liverpool, but never at any time losing his

regard for his favourite flowers. In 1870 he went as curate in charge of Kirkby Malzeard, a small country village about four or five miles from Ripon, and there I visited him for the first time in 1876. At that time a choice collection of Auriculas had been formed, also the choicest kinds of Tulips, Ranunculuses, Carnations, and other florists' flowers; the quaint and curious productions of Nature being there also; tubs and home-made tanks of various kinds being filled with water plants, a source of never-failing pleasure and instruction to their owner. He could truly say of his numerous garden treasures—

“ My never-failing friends are they,
With whom I converse night and day.”

The Auricula was the favourite flower; this could easily be seen. They had the best position in the garden, and the first place in the heart of the owner. All the finest varieties had been obtained. Mr. Campbell had raised Lord of Lorne and Duke of Argyle. Prince of Greens (Trail) was also in the collection, and another fine flower, William Lightbody, was superior to Lord Clyde of the same colour. Freedom (Booth), Colonel Taylor (Leigh), and Champion (Page) were the best green edges. George Lightbody (Headley) and Lancashire Hero (Lancashire) were the best grey edged flowers. In white edges I noted Smiling Beauty (Heap) and John Simonite (Walker) as far and away the best, but room was also found for Miss Arkley (McDonald), Earl Grosvenor (Lee), and even Ann Smith (Smith). In selfs, besides those named above, Pizarro (Campbell) was placed by Mr. Horner highest on the list. There were 600 named plants, and at least 2000 seedlings, but not many had flowered. Those that had done so were in many instances, as Mr. Horner expressed it, “amusing in their absurdity” their vagaries were remarkable. The fine white edged Smiling Beauty gave crimson and maroon selfs good for nothing. The pretty little quaker-like Ashworth's Regular gave fringed selfs like Sim's Vulcan. Even the poor green edged thing Highland Laddie was pressed in as a seed bearer, and produced goggle eyed dark selfs; but a good start was made, a few good things were found amongst the two thousand, and the work went on apace.

In the year 1881 I was again at Kirkby Malzeard, and could compare the plants I saw in that year with those in 1876, and what a change! Seedlings raised in the garden had ousted nearly all the old favourites of long ago. The only two really thought to be worth keeping were Lancashire Hero and George Lightbody. Heroine, a grand dark self, had been raised and went at once to the top of the list. The lovely blue self Sapphire was also plentiful. The green, grey, and white edged classes had also been improved, but the best of them have been annually exhibited in London at the national shows, and duly recorded in the *Journal of Horticulture*, when the first prize collections have been described. Now a larger and wider field has been opened, and at Lowfields, Burton-in-Lonsdale, thousands of seedling Auriculas are yet raised and proved year after year; and as we have recently read in the pages of the *Journal of Horticulture* Orchids have been added to the attractions of the florists' garden. In the culture of these I may say that Mr. Horner is ably seconded by Mrs. Horner; but indeed if the truth may be told the lady is first here, and it really ought to read that Mrs. Horner is ably seconded by her husband. There are no elaborately planned and expensively built houses, nor highly trained cultivators to attend to the wants of the occupants, but the results obtained would be creditable in the best conducted establishments.

The Auriculas and Tulips are not forgotten. Some remarkable varieties of the Tulips have been raised from seeds. Some, yet in the breeder state, are remarkable for form, purity, and brilliancy of colour; others in the rectified state are bound to take a high position when compared with the best yet produced. Seedling Orchids are also being produced in this quiet country garden, and those who find time hang heavy on their hands in the country would do well to remember that “the garden is the purest of human pleasures,” and that time in the country may always be pleasantly and profitably occupied by the rearing of fruits, flowers, or vegetables. It is certainly the healthiest of all occupations. The lover of gardening is brought face to face with Nature, so to speak, and rightly interpreted the student of Nature must be made happier and better in his daily life. The many admirers of our friend, and who are also readers of the *Journal*, will be pleased to see his portrait, and all of us sincerely hope that both Mr. and Mrs. Horner may long be spared to continue the work so well begun, and that the garden at Lowfields may ever continue to be as it is now—an illustration of how much may be done by a moderate outlay well applied; but the greatest good such a garden can accomplish would be as an object lesson to country gentlemen and ladies with spare hours at their disposal. It shows them a good way of redeeming the time,

and also, which is of infinite importance to us as true-born Britons, those who engage in such work are aiding to an extent not measurable at present in raising the position of our common country amongst the nations of the world.—J. DOUGLAS.

NATIONAL AURICULA AND PRIMULA SOCIETY.

APRIL 22ND.

THOUGH it cannot be said that Auriculas extend rapidly in popular favour, or that the number of exhibitors increases in proportion to other show flowers, yet all admirers of the florists' types admit that the flowers possess a delicacy and refinement of beauty scarcely surpassed in others. The fine distinction between the show varieties render a close study necessary to appreciate them, and the “properties,” from a florist's point of view, are not so apparent at first glance as in the case of many other flowers seen at exhibitions, consequently they do not appeal to the public with the same force as Roses or Chrysanthemums, or even Carnations. Still Auriculas have some qualities that all can understand, and these are perhaps more notably developed in the selfs and Alpines, in which rich shades of colour are supported in their claims for attention by a delightful fragrance, a primrose perfume, concentrated and enriched. As garden plants the Alpine Auriculas will always share with the Primroses and Polyanthus a deserved popularity for being easily grown, and amongst the earliest occupants of borders they are useful in no ordinary degree.

The Auricula Society did well when they amended their title so as to include Primulas, and though only a very small portion of the schedule is devoted to these charming plants, there is every probability that it will be found necessary to increase the encouragement provided for them. So many early flowering Primulas of much beauty are now grown, and becoming greater favourites every year, that a few more classes devoted to them would be likely to induce fresh exhibitors to enter.

The Society's Show of this year was held, in conjunction with the Royal Horticultural Society's Committee meetings, in the Drill Hall, James Street, Westminster, on Tuesday last, but the Hall is not one of the best places for a Show of this character, the deficiency of light being a serious defect where such minute characters have to be observed. With this exception there was little occasion to complain, for the plants were arranged upon the tables in the centre and at the side of the hall, and thus admitted of a ready inspection by the visitors; but there appeared to be some delay and confusion with the prize cards, and the winners in some classes could not be recorded with accuracy, therefore are omitted. In numbers the exhibition was probably the best yet held, as there were 139 entries. The quality was also generally satisfactory, though there were examples of roughness in some collections. Turning to the schedule, we will take the classes in the order of arrangement there, briefly noting the names of the successful competitors and of the best varieties shown.

SHOW AURICULAS.

Nine classes were appropriated to these, with six prizes in each, and the entries constituted a large portion of the Exhibition. All the leading green, grey, and white-edged varieties were there, together with the selfs and some seedlings, and they were examined and criticised by the experts with all the enthusiasm that florists can bring to bear upon their hobbies.

The leading class was that for twelve distinct varieties, which invariably affords the chief interest, and on this occasion there were four exhibitors, the premier award being secured by the Rev. F. D. Horner with strong plants of the following varieties:—Favourite, eight pips; Snowdrift, six pips; Laura, eight pips; Simonite's F. D. Horner, eight pips, a grand plant, the premier Auricula; Melainie, eight pips; Woodhead's Rachel, eight pips; Atalanta, four pips; Magpie, eight pips; Monarch, five pips; Desdemona, five pips; Iris, eight pips; and Headly's George Lightbody, five pips; all the others being Mr. Horner's own seedlings. The second prize was taken by Mr. T. E. Henwood, Hamilton Road, Reading, who had good plants. Woodhead's George Rudd had eleven pips, and some of the others were also large. Mr. J. Douglas, Great Gearies Gardens, Ilford, was third with an admirable collection; and Mr. A. J. Sanders, gardener to Viscountess Chewton, Bookham Lodge, Cobham, Surrey, was fourth.

With six varieties several competitors entered, and the prizes were adjudged as follows:—First to Mr. T. G. Henwood for Headly's George Lightbody, Mellor's Reliance, Woodhead's Mrs. Dodwell, Horner's Heroine, Barlow's Mrs. Potts, and Simonite's F. D. Horner. Messrs. Douglas, Horner, and Sanders were second, third, and fourth in the order named.

Four varieties were shown by ten exhibitors, Messrs. C. Phillips, Reading; G. M. Wheelwright, Reading; W. Badcock, Reading; C. Walker, Reading; and P. J. Worsley, Clifton, in the order named; and two varieties by Messrs. Phillips, Wheelwright, G. Barlow, Manchester; Walker, Badcock, and J. Worsley.

The single specimens constitute a large class, and at the Show under notice about fifty plants were entered, but there is always much difficulty in placing the whole of the twenty-four prizewinning plants in their correct order, and we can only give the names of the varieties. The names of the exhibitors were not obtainable.

Green-edged.—First, Horner's Emerald; second, Leigh's Colonel Taylor; third, Lancashire Hero; fourth, Horner's Monarch; fifth,

Simonite's F. D. Horner; sixth, no name; seventh, Horner's Monarch; eighth, Simonite's Talisman.

Grey-edged.—First, Mabel; second, G. Lightbody; third, Richard Headly; fourth, Lancashire Hero; fifth, G. Lightbody; sixth, Marmion; seventh, unnamed; eighth, Richard Headly.

White-edged.—First and second, Conservative; third and fourth, Read's Acme; fifth, Walker's John Simonite; sixth and seventh, Acme; eighth, Conservative.

Sels.—First, Mrs. Potts; second and third, Heroine; fourth, Black Bess; fifth, C. J. Perry; sixth and seventh, Black Bess; eighth, Topsy.

In the large class for fifty plants, not less than twenty varieties (including Alpines) it is seldom that much competition is induced. On Tuesday two entered, and the prizes went to Mr. J. Douglas for an excellent collection, chiefly show and self varieties, Mr. C. Turner being second with Alpines and some show and self varieties, all the plants were extremely healthy.

ALPINE AURICULAS.

In this section the classes are arranged in similar order to those for show Auriculas, and to the uneducated in the florists' code they appeared to be the most beautiful. As regards effectiveness from a decorative point of view there can be no question about their superiority if the sels in the other group are excepted. With twelve varieties the following exhibitors were successful:—Mr. Henwood first with an excellent dozen, comprising Chas. Turner, Defiance, Mrs. Martin, seedling, Edith, Philip Frost, Love Bird, Homer, Mongo McGeorge, Sunrise, Miss Blackburn, and Mary Francis, deep purple crimson, shaded centre (first class certificate). Mr. C. Turner was second, Mr. Douglas third, with Mr. Cragg, Crouch End, fourth. The best six came from Mr. Phillips, Reading, showy and well flowered plants. Mr. Douglas was second with smaller plants, Mr. Wheelwright third, and Mr. C. Turner fourth. Ferns were shown by Messrs. Wheelwright, Phillips, Walker, Kerr, and R. Dean.

Single Specimens (Gold centre).—First, Mr. Henwood with William Comber. Second, Mr. J. F. Kerr with J. J. Colman. Third, Mr. Wheelwright with Hotspur. Fourth, Mr. Turner with Sunrise; and fifth, Mr. Henwood with Miss Moon. (White or Cream Centre).—First, Mr. Turner with Miss Rae. Second, Mr. Henwood with a seedling. Third, unnamed. Fourth, Mr. Turner with Symmetry; and fifth with Tennyson.

POLYANTHUSES.

Notwithstanding the attractions of the handsome gold-laced Polyanthuses, they are never largely represented at the southern shows. They seem to be avoided for some reason by cultivators. Only three classes were appropriated to them, and the entries were not sufficiently numerous to make a large display. For six varieties the premier award was gained by Mr. S. Barlow, who had neat plants of John Bright, Cheshire Favourite, Lancer, Cox's Prince Regent, Exile, and George IV. Mr. R. Dean took the second place with several seedlings and Sir Sidney Smith; and Mr. J. Douglas was third. The best three were shown by Mr. S. Barlow, the varieties being George IV., Exile, and Cheshire Favourite. Messrs. J. Douglas and R. Dean were second and third. Single specimens of Cheshire Favourite, Cox's Prince Regent, Sir S. Smith, and John Bright gained the prizes for Messrs. Barlow and J. Douglas in the order named.

EXTRA CLASSES.

Fancy varieties of Auriculas, Polyanthuses, and Primroses formed the chief features. Of these classes but two were devoted to Primulas, one for a basket of Primroses, and eight prizes were offered for seedlings. In the class for twelve Fancy Auriculas the awards were secured by Mr. J. Douglas, first, with seedlings of a distinct character; Mr. G. Barlow was second, and Mr. R. Dean third. With a similar number of Fancy Polyanthuses Mr. R. Dean secured first honours for large plants well flowered; Mr. J. Douglas was second, and Mr. W. Harper, Guildford, was third, all very bright and pleasing. Single Primroses came from Mr. R. Dean, who was first for excellent varieties and plants; Mr. J. Douglas was second, and Mr. Harper third.

The Primula classes were for twelve and six respectively, and the exhibitors were Mr. Douglas, who had *P. verticillata*, *P. obconica*, *P. nivea*, and *P. cortusoides* varieties. Mr. W. Harper was second with smaller plants, and O. T. Hodges, Esq., Lachine, Chislehurst, third. For six Primulas Mr. G. Barlow was first, *P. obconica* being the most notable plant. Mr. R. Dean was second, a yellow duplex Primula being the best. Mr. R. Dean had the first prize for a basket of Primroses; Messrs. Paul & Son were second, and Mr. Harper third, the two former having very effective displays.

Seedling Auriculas.—In the white-edge class the first prize was awarded for *Miranda* (Horner), a neat flower of moderate size and good shape, narrow black body colour, clear edge, well defined thick paste, and rich tube. The second prize went to *Snowdrift* (Horner), a large flower, with broad deep maroon body colour, good paste, but somewhat pale tube. In the class for sels the prize was accorded to *Buttercup* (Horner), a bright yellow self, with pure white well defined but narrow paste. A very distinct and pretty variety. The second prize was awarded to *Dimple* (Horner), a deep purplish crimson self, with pure white dense paste; a well-formed handsome flower.

A first-class certificate was awarded to the following:

Jenny (Mr. T. S. Hedderley, Bulcote, Notts).—A beautiful shaded Alpine, with rich velvety maroon body colour, and a gold centre. Flower large, and well proportioned.

The National Auricula Society may be congratulated upon the dis-

tingent advance in the number of competitors at this Show, but we cannot extend the congratulation to officials concerned with the management of the Exhibition. In this respect it has always been peculiar, and the present occasion was no exception to the rule. Until late in the afternoon it was impossible to ascertain who were the successful competitors in several of the classes, and in the single specimen classes the confusion was still worse. It is strange that some better system has not been adopted after so many years of experience in the matter.

ROYAL HORTICULTURAL SOCIETY.

APRIL 22ND.

TUESDAY was a busy day at the Society's head-quarters, both in the Drill Hall, James Street, Westminster, and in the Lindley Library. Besides the attractions provided for the Fruit, Floral, and Orchid Committees there was an excellent Show by the members of the National Auricula Society, and the result was that the whole available space in the hall was occupied, four rows of tables extending the entire length of the building. This, however, was not the only satisfactory matter, for the attendance of visitors was much larger than on any previous occasion, and for the first time the hall was really crowded

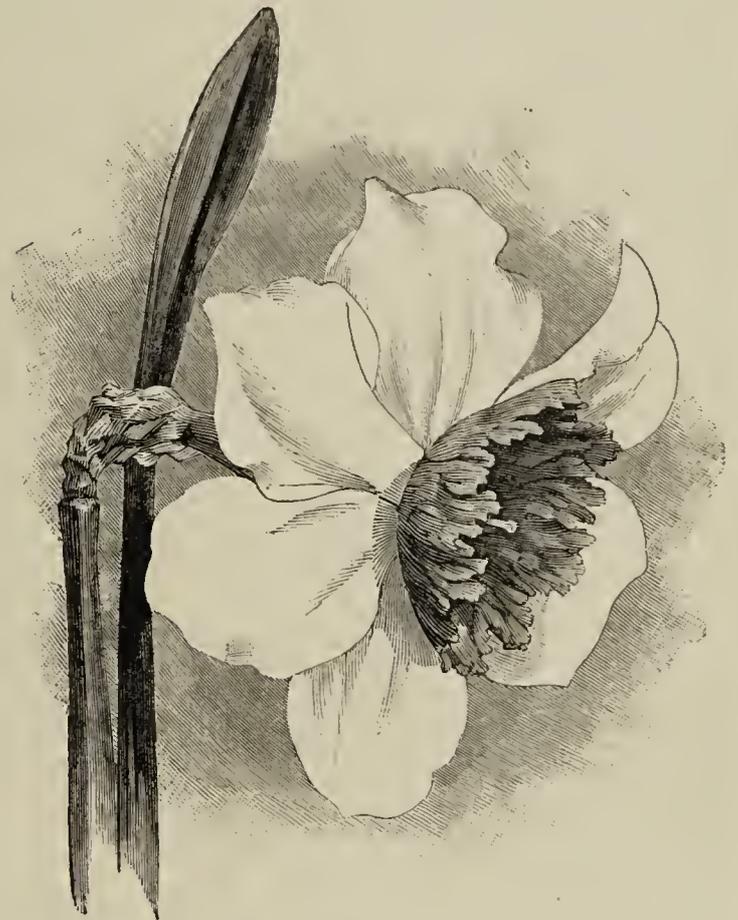


FIG. 51.—NARCISSUS INCOMPARABILIS QUEEN SOPHIA (see page 338).

during the afternoon, amongst those present being the Baroness Burdett Coutts and the Rt. Hon. J. Chamberlain, M.P.

Then at 1.30 P.M. the meeting of members of the horticultural trade to consider and support the Horticultural Hall scheme was held in the Lindley Library, and the deliberations there occupied over an hour. Following closely upon this was the general meeting at 3 P.M., when the Veitch Memorial medals were presented to Messrs. David Thomson and Bruce Findlay, and a paper was read by the Rev. Wolley Dod on Primulas. All this business crowded into the space of one afternoon afforded abundant occupation for those immediately concerned. It was a highly successful meeting, and the appearance of activity was most welcome.

FRUIT COMMITTEE.—Present: Sir C. W. Strickland, Bart., in the chair, and Messrs. D. Thomson, J. T. Saltmarsh, P. Crowley, R. D. Blackmore, T. F. Rivers, G. Cliffe, J. Cheal, G. W. Cummins, A. H. Pearson, G. Bunyard, J. Smith, G. Wythes, J. Hudson, F. Q. Lane, H. Balderson, A. Watkins, and J. Wright. Mr. J. Baylor Hartland, Cork, sent very large heads of his new Broccoli, April Queen, but though large, the heads were very compact, and the Committee recommended that the variety be grown at Chiswick. Mr. F. Q. Lane sent fruits of Lane's Prince Albert Apple for showing its keeping properties. They were firm and in good condition. A vote of thanks was accorded. Mr. G. Wythes sent excellent fruits of a Strawberry described as a seedling from Keen's Seedling, raised by the late Mr. Woodbridge, with a plant in bearing; also one with fruits of the parent variety. The Committee were unanimously of opinion that this was not the true Keen's Seedling,

which the dwarfed and earlier new variety more closely resembled. A cultural commendation was recommended for the fruits.

Messrs. J. Cheal & Sons exhibited excellent and admirably kept samples of a number of Apples, among which the following were particularly noteworthy—Brabant Bellefleur (large), Norfolk Beefing, Norfolk Bearer, Alfriston, Wormsley Pippin, Dumelow's Seedling, Ribston Pippin, Hornead Pearmain (very good), Lane's Prince Albert (fine), Brownlee's Russet (excellent), and Dutch Mignonne. A silver Banksian medal was recommended for the collection. The Committee recommended for the consideration of the Council the question of holding an exhibition of jams and jellies of different fruits, also dried, bottled, and other preparations of British fruits, towards the end of October.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. Shirley Hibberd, H. Herbst, Bruce Findlay, E. Molyneux, James Walker, F. W. Burbidge, F. Ross, W. C. Leach, H. B. May, C. T. Druery, T. Baines, C. Noble, H. Cannell, G. Paul, J. Fraser, H. Turner, W. Holmes, G. Nicholson, and Rev. H. H. D'Ombraim.

Messrs. Ryder & Son, Sale, Manchester, contributed an exceedingly interesting group of *Primula cortusoides*. Nearly fifty large pans of plants were staged in a great many varieties. Some of the best were Mrs. Geggie, purple; Rosy Morn, pale rose; Ruby Queen, rosy crimson; Queen of Whites, pure white; Harry Leigh, mauve; Miss Nellie Barnard, deep crimson, much frimbriated; Delicata, pale mauve; Bruce Findlay, bluish mauve, and Mrs. Ryder, delicate blush. Mr. J. Walker, Thame, Oxon, sent two boxes of *Maréchal Niel* Rose blooms extremely fine. Messrs. Barr & Son, King Street, Covent Garden, had a large group of *Daffodils* and hardy flowers. Mr. H. B. May, Edmonton, showed a collection of Ferns in pots, comprising some of the most distinct and useful for market purposes. Messrs. H. Lane & Son, Berkhamstead, had a group of *Rhododendrons* in pots, dwarf, compact, bushy specimens, well flowered, and the group was brightened by the plants of *Azalea mollis* associated with the others.

Messrs. B. S. Williams & Son, Upper Holloway, staged a handsome group of *Amaryllises*, including specimens of some of their best varieties; plants of the graceful *Rhododendron Williamsi*, with neat compact globular heads of small blush nearly white flowers. *Spiræa astilboides*, with long plume-like spikes of white flowers was also well represented, and a capital collection of *Clivias* bearing large trusses of their deep orange flowers completed an important group. Messrs. Paul & Son, Cheshunt, exhibited a small collection of hardy plants, amongst which was a box of *Doronicum plantagineum excelsum*, the flowers large and brilliant. *Fritillarias* also were noteworthy.

From the Royal Gardens, Kew, came a group of plants and flowers, as usual including many of great interest. *Streptocarpus Dunni*, a Natal plant, with peculiar dull reddish flowers, arising in dense clusters from the one enormous whitish deeply ribbed leaf was prominent; but perhaps the most remarkable was the flower of *Aristolochia Goldieana*, which is one of the largest in the genus, and was illustrated in this Journal on page 456, vol. xxxviii., second series, June 10th, 1880. Flowers of the peculiar and celebrated *Amherstia nobilis* were included in the collection, the long dense blue spikes of *Echium callithyrsum*, the red bud-like flowers of *Crinodendron Hookerianum* from Chili, the slender graceful blue-flowered *Tropeolum azureum*, several *Rhododendrons*, and a basket of *Primulas* completed the collection. T. H. Burroughes, Esq., 16, Lower Berkeley Street, W., showed a group of *Anemones*, comprising some handsome varieties of *A. hortensis*, *A. nemorosa*, *A. Pulsatilla*, and *A. ranunculoides* (vote of thanks).

Mrs. Grinling, Harrow Weald House, Stanmore, showed a plant of *Ochna multiflora*, bearing a large number of its curious bright red calyxes and small globular green and black fruits (vote of thanks). Mr. Wythes, Syon House Gardens, showed a group of *Pernettya mucronata*, flowering stems of *Ruscus androgynus*, the beautiful blue *Papilionaceous Clitoria ternatea*, and the white *Solanaceous Anthocercis viscosa*.

Messrs. J. Veitch & Sons, Chelsea, exhibited large plants of the white-flowered elegant shrub *Chionanthus virginica*, the rosy salmon double *Azalea roseiflora* (Rollissoni), and a *Pæony* named *Reine Elizabeth*, with very large deep rose-coloured flowers.

Medals were awarded as follows:—Silver-gilt Banksian to Messrs. Ryder & Son, silver Banksian to Messrs. B. S. Williams & Son, bronze Banksian to Messrs. J. Veitch & Sons and to Messrs. H. Lane & Sons.

ORCHID COMMITTEE.—Present: T. B. Haywood, Esq., in the chair, and Messrs. A. H. Smee, Sidney Courtauld, H. M. Pollett, H. Ballantine, James O'Brien, Lewis Castle, F. Moore, Henry Williams, E. Hill, J. Domy, A. Sander, D. B. Crawshay, J. Douglas, and Dr. M. T. Masters.

The Orchids were not quite so numerous as at some of the previous meetings, but there were some notable plants, and certificates with awards of merit were adjudged in several cases. Mr. A. H. Smee, in exhibiting a yellow variety of *Odontoglossum triumphans*, read the following interesting note:—"Some years ago, when experimenting with flowers and plants placed in a weak solution of silicate of soda, I noticed that the plants and flowers were affected by the solution according to the colour. The colour, I found, disappeared in the following order—blue, lilac, red, brown, whilst yellow was the most persistent. Green behaved according to whether blue or yellow predominated in its composition. It has occurred to me whether the white varieties of flowers are not found amongst plants in a similar order. We have an example of the blanching of the old flowers of *Franciscea*. Then, again, in the poor varieties of the *Vanda cœrulea* the petals are almost

white, with very pale blue veining. In *Cattleyas* the colour of the petals and lips disappears, leaving the yellow throat and pale pink tint, which so often spoils a white *Cattleya* from a florist's point of view. Therefore as yellow is so persistent we cannot expect a *Cattleya citrina* to appear amongst our white varieties. The white *O. crispum* is due to disappearance of the brown blotches, leaving only the yellow markings on the column, and in the case of the yellow *O. triumphans*, which is a poor form of the ordinary type, the brown blotches are either absent or are in process of disappearance. The only pure white forms of Orchids are *Cœlogyne cristata alba* and *Dendrobium Kingianum album*."

Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, exhibited *Dendrobium sulcatum* with a short raceme of golden flowers; an excellent plant of *Oncidium phymatochilum*, having three large panicles of flowers, the long, narrow, twisted, pale yellow brown spotted sepals and petals and white lip brown at the base, having distinct appearance (cultural commendation), and an inflorescence of *Phalænopsis grandiflora* having thirteen uncommonly large flowers. R. J. Measures, Esq., Camberwell, sent a plant of *Cypripedium Apollo*, an interesting hybrid, but it was passed by the Committee. Malcome E. Cooke, Esq., Kingston Hill (gardener, Mr. Cullimore), had a small group of *Odontoglossums* and *Masdevallias*. Mr. Smee showed a plant of *Dendrobium thysiflorum* with three long racemes, and Messrs. J. Veitch & Sons sent plants of *Cattleya columnata* from C. Acklandia and C. intermedia, the sepals and petals spotted with deep purple on a light ground, and with a crimson lip, also *Cypripedium Priapus* from C. philippinense and C. villosum.

CERTIFICATED PLANTS.

Odontoglossum triumphans aureum (A. H. Smee, Esq., The Grange, Wallington; gardener, Mr. Cummins).—An excellent variety with large flowers and of a deep yellow colour, with a few lighter markings. One of the best of the yellow-flowered forms of *O. triumphans* yet exhibited, and a decided acquisition. (First-class certificate).

Cattleya Lawrenceana Vincki (Baron Schröder).—Though remarkably distinct in colouring this could not be described as rivalling the typical form in attractions. The sepals and petals are tinted with a pale delicate mauve colour, the lip being a much deeper shade of a similar colour. Specimen flowers of a good variety of C. Lawrenceana as grown at The Dell were also shown for comparison, and the distinctness of the variety Vincki was very striking. (First-class certificate).

Odontoglossum vexillarium, Le Doux's variety (G. Le Doux, Esq., East Moulsey, Surrey).—A variety notable for the large size of the flowers, the lip being broad, rounded, and white, the sepals and petals faintly tinted with rose. (Award of merit).

Odontoglossum Pesatorei variety Mrs. G. W. Palmer (G. W. Palmer, Esq., Elmhurst, Reading; gardener, Mr. B. Dockerill).—A most beautiful variety with well formed flowers, the sepals and petals broad, white, with numerous bright purple spots towards the centre of the flower. (Award of merit).

Nephrolepis exaltata plumosa (H. B. May).—A dwarf compact growing variety with short divided fronds tufted or crested at the points, thus giving a plumose and elegant appearance. (Award of merit).

Rhododendron Williamsi (Messrs. B. S. Williams & Son, Upper Holloway).—A free and graceful *Rhododendron* with narrow leaves and abundant compact globular trusses of delicate blush nearly white flowers. The floriferous character of the plant will render it a favourite with all who have not grown it, and the moderate size of the flower heads render it lighter and more elegant in appearance than the majority of *Rhododendrons*. (Award of merit).

Primrose Red Gauntlet (G. F. Wilson, Esq., Weybridge).—An effective variety of the Scott Wilson group, the flowers very large, deep purplish blue, with a dark red centre. (Award of merit).

Primula cortusoides Distinction (Messrs. Ryder & Son).—A fine variety with large deeply fringed flowers, bright rose, lighter in the centre. (Award of merit).

Mignonette Garaway's Double White Improved (Messrs. Garaway and Son, Bristol).—Flowers large white and fragrant, in long close spikes.

PRESENTATION OF MEDALS.

At 3 P.M. the usual general meeting of the Fellows was held in the Drill Hall, Sir Trevor Lawrence, Bart., M.P., presiding. The ordinary business, such as reading the minutes of the last meeting and the election of Fellows, having been completed, the President introduced the principal object of the meeting—namely, the presentation of the Veitch Memorial medals to Mr. David Thomson, Drumlanrig Gardens, and Mr. Bruce Findlay, curator, Botanic Gardens, Manchester, for distinguished services to horticulture. After briefly reviewing the numerous claims to the honour possessed by Mr. Thomson as a practical and most successful gardener, and as the author of several useful works on horticulture, he handed the medal to that gentleman, who was received with loud applause when he rose to reply. His remarks were brief and to the point. He said how deeply he appreciated the honour that had been paid to him, and modestly urged that he could only claim to be a successful servant. Sir Trevor Lawrence then referred to the good work performed by Mr. Bruce Findlay in organising extensive shows at Manchester, and remarked that the award of the medal was only a just recognition of the ability he had displayed. Mr. Findlay was heartily cheered, and replied, also briefly, but owing to the noise in the Hall at the time his remarks could not be heard by many persons. Following this the Rev. Wolley Dodd gave a lecture on *Primulas*, in which he recounted his experience at

some length, and several Fellows joined in the discussion which followed.

[Mr. Thomson and Mr. Bruce Findlay were entertained in the evening at dinner by the Horticultural Club in the Hotel Windsor, when the chair was occupied by Dr. Robert Hogg.]

ROYAL BOTANIC SOCIETY.

APRIL 23RD.

IN its main features—the non-competing exhibits—the second Spring Show of the year in the Regent's Park Botanic Gardens on Wednesday last was a repetition of that held on the previous day in the Drill Hall at Westminster, therefore it is only necessary to say that the display was a good one as regards numbers and diversity, the whole of the corridor and a portion of the conservatory being devoted to the exhibits. The weather was changeable, but the attendance of visitors was satisfactory for a spring show, as, strangely enough, these earliest horticultural attractions rarely result in large gate receipts, either in the metropolis or the provinces.

Some of the chief exhibits apart from the trade collections may be briefly noted first. Six capital Azaleas gained Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, the premier award in the class, Roi d'Hollande, Charmer, and Reine de Pays Bas being exceptionally well flowered. Mr. R. Scott, gardener to Miss Foster, The Holmes, Regent's Park, was a good second. Mr. C. Turner was easily first in the nurserymen's class for six Azaleas with moderate sized but well flowered plants, Mr. H. James's third prize being of poor quality.

Mr. J. Douglas, Great Gearies Gardens, Ilford, was first for twelve Auriculas, excellent plants of good varieties. Mr. A. J. Sanders, gardener to Viscountess Chewton, Bookham Lodge, Cobham, was second. Mr. C. Turner, Slough, was first with twelve Alpine Auriculas, Messrs. Douglas and Sanders following in that order.

Messrs. Paul & Son, Cheshunt, were adjudged premier honours for nine Roses in pots, first-rate plants of Innocente Pirola, La France, William Warden, Magna Charta, and Alphonse Souper being notable. Mr. W. Rumsey was second with smaller plants. Messrs. H. Cannell and Sons, Swanley, Kent, won first honours for twelve tuberous Begonias with handsome double and single varieties of beautiful types. Mr. D. Phillips had the only nine Pelargoniums, healthy, well flowered plants, and was awarded the first prize. The same exhibitor took similar honours with twelve Cinerarias, followed by Mr. Douglas. Messrs. Paul and Son were first with a dozen excellent Amaryllises. Mr. Douglas was first with hardy Primulas, followed by Messrs. Paul & Son. Mr. T. S. Ware was first for a large collection of hardy herbaceous plants. Mignonette was excellent from Mr. W. Morte, Regent Street, Mrs. H. W. Morte, Fenchurch Street, and Mr. Phillips, Slough.

The non-competing exhibits included a grand bank of Primula cortusoides varieties from Messrs. Ryder & Son, Sale, Manchester, more tastefully arranged than on the previous day; an effective group of flowering and foliage plants from Messrs. Laing & Son, Forest Hill. Messrs. B. S. Williams & Son, Upper Holloway, had a group of Amaryllises, Spiræas, Rhododendrons, and Clivias; Messrs. Barr & Son, Covent Garden, a large collection of Daffodils; T. H. Burroughes, Esq., Ketton, showed a group of Anemones; Mr. W. Morte had a group of flowering and foliage plants. Mr. J. Douglas sent a collection of Auriculas and Primulas; Messrs. Paul & Son a group of hardy plants; Mr. T. S. Ware contributed a large group of Daffodils; Roses in pots came from Messrs. W. Rumsey & Son, Rhododendrons from Messrs. H. Lane and Son, and Maréchal Niel Rose blooms from Mr. J. Walker, Thame.

NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.

THE spring Show of the above Society was held on Wednesday and Thursday last in the Town Hall and Corn Exchange, Newcastle-on-Tyne. The spring Show of the above Society in the north of England is generally looked forward to most eagerly by the general public as well as the gardening world, and the past Exhibition was very satisfactory. The past season having been very mild gave great impetus to the development of the usual spring flowers, such as Hyacinths, Tulips, which were only on an equality with the exceptionally well-developed specimens of stove and greenhouse plants. The Azaleas in the latter class were very good, while the splendid plant of Rhododendron Veitchianum, exhibited by Mr. F. C. Ford, Pierremont, Darlington, along with Azaleas made that department most effective. A new feature this year in the Exhibition were the Trumpet Daffodils, which Mr. J. W. Watson, nurseryman, Fenham, exhibited in good style. The Staging Committee at Newcastle, with Mr. E. Wilson as their guide, generally endeavour to vary the arrangement every year, so as to cause a more pleasing effect in the blending of the various plants and flowers, and this year their efforts on all sides were considered most successful. The bouquets, buttonholes, and epergnes were, as usual, placed upstairs in the Town Hall on a long table occupying the centre of the Town Hall. These were excellent, which can be understood when it is stated that Messrs. Perkins of Coventry, and Mr. Armstrong, florist, Newcastle, were among the exhibitors.

Appended is the list of the Judges' awards. There are, generally speaking, three divisions; the A division open to all, the B to gentlemen's gardeners, and the C to amateurs only. In the A division, for four plants, Mr. F. C. Ford, gardener to Mrs. Pease, Pierremont Hall,

Darlington, was an easy first. The specimens were Erica Victoria Regina, 5 feet across, well and strongly flowered, and perfectly fresh; Imantophyllum miniatum superbum, sixteen trusses, very highly coloured and foliage in good condition; Tremandra verticillata, a mass of bloom. We have now only to mention Rhododendron Veitchi, which was in splendid condition, full of bloom; in fact, covered with its charming large white flowers. Mr. James Wood, gardener to T. Lange, Esq., Heathfield, Low Fell, Gateshead, was second. Mr. E. Adams, Swalwell, was third. For four Azaleas Mr. F. C. Ford was also first, exhibiting Vesuvius, Roi d'Holland, Duc de Nassau, and Antonelli. All good examples of culture, and not too stiff as to tying down, but evenly furnished with foliage. Mr. John McIntyre, Darlington, was second with Apollon, a pure white, and Chas. Van Eckhaute, creamy white; Duc de Nassau and Madame Le Febvre, scarlet and crimson respectively. Mr. James Wood in this class was third. For three Orchids Mr. Ford followed up his former success, and was first with Cœlogyne cristata, 4 feet across, profusely bloomed, and the flowers all lying neatly on the foliage; Dendrobium nobile, a very fine plant, the sepals darkly marked and very large; the other plant, Oncidium leucochilum, was also very fine. Mr. Wood was second with Dendrobium nobile Heathfieldianum; having nine spikes; also a Dendrobium Wardianum and nobile. These were the only exhibitors in Orchids.

Dielytras, Deutzias, Genistas, Spiræas, Cinerarias, Lily of the Valley (all in pots of six, save the Genistas, which are three), form a very strong feature in this Show, and were a marvellous display. The following were the chief prizewinners:—Mr. J. McIntyre, Mr. Jos. Puntun, Mr. Paul Blanchard, Mr. W. L. L. Thompson, Mr. George Brown. There were this year no Cyclamens. For six fine pots of Lily of the Valley Mr. W. J. Watson was first, and for six hardy Primulas, which are always well shown at Newcastle, Mr. W. L. Thompson was first with Primula nivalis, lutea plena, cortusoides amœna, lutea alba and lilacina. Table plants were capital from ten competitors. Mr. J. McIntyre was first with even examples of Cocos Weddelliana, Geonoma gracilis, Croton aigburthiensis, Dracœna angustifolia, and Aralia gracillima. The Society offered a prize for Strawberries, which only brought forth one competitor, Mr. J. McIntyre, who staged some specimens of what was apparently Kean's Seedling.

Auriculas are always a very important exhibition at Newcastle. This year for twelve Auriculas (nine varieties) Alpines excluded, Mr. R. Patterson, gardener to Mrs. Backhouse, Ashburton Hall, Sunderland, was first with Heatherbell, F. D. Horner, Frank Simonite (good), Heroine, John Simonite, Acme (five pips)—this plant received the premier award of the Exhibition for one plant—B'ack Bess, George Lightbody, Headley, Campbell's green edge, and Chas. J. Perry. Mr. W. H. White, Killingworth, was second with Acme (good), Frank Simonite, Prince of Greens, Heroine. For six Auriculas, same as above, Mr. W. Thompson was first with Trail's Beauty, George Lightbody, Chas. J. Perry, and Acme (eight pips). Mr. Patterson followed with Competitor, General Neil, Frank Simonite, Magician, and Campbell's green edge. For four Mr. Patterson and Mr. Thompson reversed positions with similar varieties; while for two distinct, one green edged and one grey, Mr. Patterson was again first. For one white edged Mr. Battensby was first with Frank Simonite. For twelve Alpines, not less than nine varieties, Mr. R. Patterson was again first, followed by Mr. White, Killingworth, the former showing in true Auricula style Llewellyn, Mrs. Dodwell, Reuben, Diadem, Queen Victoria, King of the Belgians, and George Lightbody, the latter unique. Mr. R. Patterson is a new Auricula exhibitor at Newcastle Show, and has done well, and it is hoped he may display the same success and energy in future exhibitions. In this class alone there were seven competitors, many of whom exhibited very good flowers. For six Polyanthuses, gold laced, Mr. Stobbs was first with George the Fourth (Bucks), President, John Wright, Queen of the Tyne, Prince Regent, Cheshire Favourite. Mr. Stobbs was also first for one gold laced variety.

Hyacinths, as usual, form a most important feature of the above Show, and this year as regards quality and quantity formed no exception to the rule, Mr. W. J. Watson being first again with very fine flowers, well developed, good colour, and foliage in excellent condition. The best flowers among blues were King of Blues; white, Mont Blanc; lilac, Lord Derby; red, Von Schiller; cream, Grandeur à Merveille. There were also of various shades Ida, Macaulay; La Grandesse Czar, Peter, and Blondin. Mr. Henry Dewar, nurseryman, Newcastle, was second with creditable specimens, the best being Lord Derby, Fabiola, La Grandesse, The Sultan, Czar Peter, and a fine violet blue Souvenir de J. H. Veen. Alexander Kerr & Sons, Kelso, were third. For twelve varieties of Hyacinths, single, not less than seven varieties, Mr. J. Watson was again first, flowers similar to those mentioned, but including fine flowers of Lord Derby, General Havelock (a fine violet blue), also Von Schiller and Grandeur à Merveille. Messrs. Henry Dewar were second, and Mr. Edward Laidlaw, Sunderland, third.

Single Tulips were very fine this year, and included the usual well known varieties, Messrs. Watson and Dewar occupying the same position in their former competition. To six pots of double Tulips Mr. James Ward was first with fine open flowers of Tournesol (scarlet and yellow), Duke of York, and Imperator Rubrorum. For six pots of Polyanthus Narcissus Mr. J. McIntyre, Darlington, was first, followed by Mr. J. W. Watson, and for six pots of Trumpet Narcissus, a new feature in the Exhibition, Mr. W. J. Watson was first. Although there were no other competitors the decision was most just, and gave great satisfaction for this a new feature at Newcastle. In the corresponding class B for Hyacinths Mr. James Wood was most successful, winning the first prize for twelve and six Hyacinths, and also first for Tulips. For Azaleas Mr.

F. C. Ford was again first for *Dielytra* and *Deutzias*. Messrs. F. C. Ford and Wood respectively took first, and for *Spiræas*, *Cincarias*, *Primula sinensis*, and six pots of *Lily of the Valley* Messrs. Paul Blanchard, W. B. Forsyth, Joseph Punton, and John Morris, Felling-on-Tyne, the latter a builder, and all through the Exhibition exhibited first-class plants, the *Lilies of the Valley* in this class being especially admired. In the amateur or C class, open to cottagers only, Messrs. E. Adams, Thomas Ruskham, John Battensby, Jos. Collinson, J. Birkinshaw, Wm. Muir, J. Morris, R. C. Hope, and Thomas Battensby were the most successful exhibitors.

Cut Flowers and Table Decorations.—For twelve *Camellias* Mr. James Wood was again first, and for twelve *Rhododendron* blooms Mr. F. C. Ford was as usual first. For twelve *Rose* blooms of *Maréchal Niel* Mr. Jas. Wood was first, and received the special certificate of the Royal Horticultural Society. For twelve *Show and Fancy Pansies* Mr. Thos. Battensby was respectively first. *Epergnes*.—These, as we have said before, form a most distinguished feature of the Spring Show at Newcastle, and the smallest epergne, arranged by Mr. O. Lamb, gardener, South Hill, Chester-le-Street, was a creditable example of what judicious taste can do combined with a *recherché* variety of stove and greenhouse flowers also arranged and displayed in faultless style. As regards colour and placement, this young exhibitor on all sides was awarded that the opinion of the Judges in premier prize was most deserved. To describe the epergne as best we can. *Lygodium scandens* was used in the upper tiers of the March stand most effectively, *Anthurium Schertzerianum* and *Andreanum* amongst bright coloured flowers were most effective, *Zygotetalum Mackayi*, *Phaius grandiflora*, and *Cypripedium Lawrenceanum*, *Lilium Harrisii*, white *Camellias*, *Roses*, *Eucharis amazonica*, were all used with good effect, as well as varieties of *Amaryllis*, all worked in with due regard to colour and effect. Mr. F. E. Edmondson, Newcastle, was second with a very fine epergne. *Marguerites* were used with much effect, as well as many other choice flowers, and the whole was evenly draped with *Asparagus plumosus*.

Bridal bouquets were tasteful. Messrs. Perkins & Son, Coventry, were first with a marvellous bouquet, including many choice flowers. Amongst *Orchids* were *Odontoglossum grande*, *Ceologyne cristata*, *Pan-cratiun*, *Eucharis*, and some marvellous *Roses* of *Niphetos*, *Stephanotis*, *Lily of the Valley*, and white *Lapageria*. Amongst foliage *Caladium argyrites* was deftly worked in. Miss Emily Armstrong, Neville Street, Newcastle, was second with flowers similar to those mentioned, except the favourite *Tabernæmontana cymosa flore-pleno* was used. *Cymbidium aloifolium* was also very useful. Mrs. John Jennings was third. In this class there were five competitors. For a hand bouquet Miss Emily Armstrong was most deservedly first. Many choice flowers were used, including *Cattleya Mossiæ*, *Sophranitis grandiflora*, employed so as to have a most telling effect, and *Roses*, all being dispersed over with *Adiantum gracillimum*. Messrs. Perkins & Sons were second with a very fine bouquet.

For a lady's spray Messrs. Perkins were again first, employing *Odontoglossum grande* and *Alexandrea*, *Oncidium*, other choice flowers, *Caladium argyrites*, and *Asparagus* were also entwined gracefully amongst the flowers. For a buttonhole bouquet there were numerous competitors; Miss Emily Handyside, Newcastle, was first, including *Odontoglossum Alexandrea*, *Bouvardia* (scarlet), *Lily of the Valley*, and *Adiantum gracillimum*, this was first amongst twenty competitors. In the corresponding class for an epergne Mr. J. Battensby was first, and for a hand bouquet Miss Emily Armstrong was first with similar to her first prize in the other class, and with the addition of *Catherine Mermet* *Roses*, and *Dendrobium nobile*. Mrs. John Jennings was second; *Odontoglossum Alexandrea* and a fine specimen flower of *Cattleya Mossiæ aurea*, the sepals of a charming primrose colour, were much admired.

Several local nurserymen contributed stove and greenhouse plants, which added much to the attractiveness of the Exhibition, including Messrs. J. W. Tait, W. R. Armstrong, John Jennings, Newcastle; Wm. Fell & Co., Hexham; Kent & Brydon, Darlington; John Morris, Park Road, Felling; W. Smout, Trinity Street, Leeds, exhibited a fine stand of dried seaweeds. The receipts for the two days were a few pounds short of last year. The Committee were, as usual, indefatigable in their exertions to render the Show a great success, and aided by their accomplished Secretary, Mr. Jas. J. Gillespie, the visitors were well looked after, and the indispensable attention to exhibitors was not forgotten.

THE BIRMINGHAM SPRING SHOW.

APRIL 16TH AND 17TH.

In the tenth annual Exhibition, regarded as the best the Society has held, *Orchids* were a great feature, and in an extra group Mr. Charles Winn of Selly Oak exhibited, was a plant of the beautiful *Cypripedium Lathamianum*, raised by Mr. Latham of the Birmingham Botanical Gardens, the result of a cross betwixt *C. villosum* and *C. Spicerianum*. In the class for twelve *Orchids* the first prize was won by the Right Hon. Joseph Chamberlain, M.P., amongst which were notable examples of *Dendrobiums Wardianum*, *Freemani*, and *crassinode Barberianum*, *Oncidium Marshallianum*, *Cattleya Mendelli*, a well flowered plant of the bright *Ada aurantiaca*, and *Cattleya Lawrenceana*. Mr. C. Winn was second with good specimens of *Masdevallia Harryana*, and *Cypripediums Schroederæ*, *Warnerianum*, and *villosum*. Third, Mr. G. H. Kenrick, who staged *Odontoglossum citrosimum*, *Dendrobiums Wardianum* and

thyrsoflorum, and *Cymbidium Lowianum* with others. In the class for six *Orchids* Mr. C. Winn was second with capital examples, including *Cypripediums villosum* and *venustum*, and a good plant of a grand *Cattleya Trianae formosa*, the labellum large and very rich in colour, with a bright yellow throat. The Right Hon. J. Chamberlain, M.P., securing the first prize with some good plants, which included handsome specimens of *Odontoglossum Andersonianum*, *Cattleyas Schroederi* and *Lawrenciana*, and *Dendrobium Wardianum*.

Sir Thomas Martineau's first prize six stove and greenhouse plants were well done specimens, all flowering plants. *Azaleas* were very good, not monster specimens, but clean, well-grown, and flowered. *Hyacinths* were well represented, considering that so many collections grown in the district were over. Mr. Charles Showell took the first prize for well-grown specimens, which included some new varieties. Other successful exhibitors were Mr. G. Newell, gardener to Mr. G. H. Kenrick; Mr. J. Beesley, gardener to Mr. N. Thwaite; and Mr. W. H. Dyer, gardener to Mrs. Marigold.

Tulips were numerous and good. Mr. Cooper, gardener to the Right Hon. Joseph Chamberlain, M.P., was first with stove and greenhouse flowers, and was throughout a very successful exhibitor. A few *Auriculas* were staged, but were not up to the mark generally. The best were Duke of Wellington, Frank Simonite, General Niel, John Simonite, Robert Trail, and *Alpinis*, John Leech, Mrs. Ball, Sailor Prince, Rival, Mrs. Thompson, and Mrs. Dodwell. Mr. Cooper, The Gardens, High-bury, obtained the first prize for six superb *Cyclamens*. Mr. Brasiere had some grand specimen plants of *Hydrangea Thomas Hogg*. Plants of *Azalea mollis* in variety were excellent. *Deutzias*, *Spiræas*, and *Dielytras* are always shown well here.

Several non-competing exhibits were staged, and *Narcissi* in a cut state were conspicuous. Mr. Thomas Ware, Tottenham, set up an extensive collection. Messrs. Dickson & Co. Limited, Chester, also staged a collection of about fifty varieties. Messrs. Cutbush & Son, Highgate, Nurseries, London, sent some very fine *Cyclamens*, *Boronia heterophylla* a gem amongst hardwooded plants, cut *Narcissi* and *Crown Imperials*, and other plants. Messrs. Richard Smith & Co., nurserymen, Worcester, contributed a large group of forced *Rhododendrons*, *Azalea mollis*, berried *Aucubas*, *Clematisses*, and *Japanese Maples*. Messrs. Pope and Sons, nurserymen, exhibited some new *Clematisses*, the double *Pelargonium Le Bruant*, a group of *Primula marginata*, and other plants, and a stand of very fine fancy *Pansies*, as well as artistic floral arrangements. Messrs. Thomson, nurserymen, set up an exquisitely arranged group of plants, in which a circle of *Primula obconica* was conspicuous, and also a massive and handsome memorial anchor of flowers of great beauty. Messrs. Pope & Son took the first prize for bouquets with a splendid example of artistic work. Messrs. Hewitt & Co., nurserymen, had a small but charming group, in which were two patches of the old Hoop *Petticoat Narcissus* and fine *Lilium Harrisii*, also a group of hardy spring flowers. Mr. Shuttleworth had a large assortment of rustic garden adornments, lightly and artistically made.



FRUIT FORCING.

VINES.—*Early Forced.*—In the earliest house red spider may be expected. Paint the return hot-water pipes with sulphur mixed with milk so as to form a thin paste. Give the border a thorough watering, mulching afterwards. This refers to the inside border. Apply the water early in the day, so that surplus moisture may pass off before closing time. Early Grapes do not always colour well, the defect arising from overcropping or continued hard forcing. It is only avoided by a constant supply of dry warm air and a low night temperature. Where Grapes are fully ripe a reduction in temperature is advisable, yet moderate moisture should be maintained for the benefit of the foliage. The moisture will not do the Grapes any harm provided the air is changed by free ventilation. Afford a temperature of 60°.

Succession Houses.—Attend to stopping and tying the shoots. Where the space is restricted stop the shoots two joints beyond the fruit, and as foliage is necessary leave the laterals on the shoots both above and below the bunch, or at least those from the two lowest eyes, and those level with and above the bunch. Pinch those at the first joint, especially those from the basal leaves, also those above unless there is space for extending the laterals, when they may be allowed to make two or three leaves, but no more growth should be encouraged than can have exposure to light and air. After the space is fairly furnished keep the growths closely pinched to one joint as made. Where there is more space stopping will not take place until growth has extended four or more joints beyond the fruit. The great evil is overcrowding, which deprives the foliage of the light and air, and restricting the growth is intended to avoid that.

Tying the Shoots.—Securing the shoots into the places where they are to remain during the summer is an operation which commands much attention. It is a common practice to begin to tie down the shoots as soon as they are long enough to bend. This is not advisable

except as a precaution against injury from frost, as the shoots at this stage are so tender that the slightest twist the wrong way breaks them. It is a better plan to defer tying down until the shoots are less sappy, which may be when the fruit is formed, but a better plan still is to so dispose the rod that the shoots, instead of being brought down to a nearly horizontal position, will have a good incline upward, yet sufficiently outward or oblique to admit light to the basal leaves of the shoots.

Muscats in Flower.—Afford a free circulation of air rather dry, and a temperature of 80° to 85° or 90° by day, falling to 70° or 65° at night, raising the points of the bunches to the light, and liberate the pollen at midday by gently rapping the footstalks of the bunches. If there is a deficiency of pollen take it from those that afford it plentifully, such as Black Hamburgs, and apply it to the shy-setting varieties with a camel-hair brush.

Thinning.—Where there is a quantity of Grapes to be thinned commence as soon as they are out of flower with the free-setting varieties, such as Black Hamburgs; and some, like Gros Colman, Gros Guillaume, and Trebbiano may be thinned whilst they are flowering. Follow it up early and late and on dull days. Surplus bunches may be removed, as overcropping proves fatal to colour and finish.

Young Vines.—Those planted last year are breaking naturally, and may be assisted with gentle fire heat in cold weather. The canes will have been fully depressed, so as to cause them to break regularly down to the basal buds, when they can be tied in position. Disbud, leaving the best shoots about 18 inches apart on both sides of the canes. Crop very lightly, one or two bunches being the maximum. Any extra Vines planted to fruit early and afterwards to be cut out may carry a bunch on each, six or eight bunches, or even more, according to the vigour of the Vines.

Planting Vines.—This is the best time for planting young canes. We prefer the borders partly within and partly outside, planting the Vines inside the house. For very early forcing the borders are preferably inside, otherwise we do not advocate confining the roots in this way. The border should be concreted at the bottom unless it has a substratum of gravel or other porous substance; rubble 1 foot thick must be placed on the concrete, and proper drains and outlets provided. Thirty inches depth of soil is ample. Turf 3 inches thick taken off loam friable rather than tenacious, broken up roughly and mixed with a tenth of old mortar rubbish, charcoal, and some crushed bones, form a suitable compost; but well-drained and fertile garden soil will grow serviceable Grapes. The Vines, it is assumed, were cut back in early winter and have been kept in a cool house, the eyes now having grown 2 or 3 inches long. Turn them out of the pots, remove every particle of soil, carefully preserving the fibres. Spread the roots out straight and flat, the soil of the border having been brought to the required level, covering the roots to the depth of about 4 inches, working the soil well amongst them with the hand, and giving a good supply of water at a temperature of 90°, mulching with a little short litter. If the canes have not been shortened do not cut them now, but remove the buds from the upper portion down to where fresh growth is desired to issue, and cut away the disbudded part when the Vines have made some leaves, as there is then no danger of bleeding. Six feet width of border will be sufficient to commence with. Sprinkle the Vines and house twice a day, but avoid sharp forcing. Temperatures of 55° at night, 65° by day artificially, and 70° to 75° with sun are suitable. If the weather be bright and the panes of glass large, shade lightly from 10 A.M. to 2 P.M., when the house should be closed, damping all available surfaces. If the temperature run up to 85° or more it will be an advantage. When the Vines have started into growth give every encouragement, increasing the temperature to 60° to 65° at night, 70° to 75° by day, and 80° to 85° from sun heat.

CUCUMBERS.—Despite the cold winds these have made good progress lately, and require attention in tying out the growth, stopping one or two joints beyond the fruit, removing bad leaves and exhausted growths, so as to maintain a succession of healthy fruitful shoots. Water plants in houses abundantly, and with weak liquid manure about twice a week, syringing the foliage and walls daily about 3.30 P.M., when the house can be closed. Preserve a night temperature of 70°, 70° to 75° by day artificially, 80° to 85° from sun heat, ventilating from 75°, being careful to avoid cold and drying currents of air, and close sufficiently early to run up to 90° or more with plenty of moisture in the house. Sprinkle available surfaces in the evening occasionally with liquid manure, or fresh horse manure on the surface of the bed will answer the twofold purpose of evolving ammonia to the benefit of the foliage, and supply nutriment to the soil as well as encouraging surface roots.

Pits and Frames.—Plants in those will hardly need shading as yet, but they must not be allowed to flag. Use tepid water through a rose watering pot at about 3 P.M., closing the lights at the same time, but as the nights are as yet cold be careful that the foliage becomes dry before night. Close early, employing a good thick night covering. Maintain a good bottom by linings, renewing them as necessary. Pot or sow ridge varieties if not already done, keeping these and other young plants near the glass.

MELONS.—The fruits of the earliest plants are growing large, they must have the supports lowered. Frequently stop the laterals, or thin them where they are crowded. Supply water or liquid manure liberally to plants on which the fruit is growing fast, but avoid excess of liquid manure, which may injure the roots, and the fruit in consequence will not finish satisfactorily. Plants coming into flower should not have

very copious supplies of water, only affording sufficient to prevent flagging, and a drier condition of the atmosphere is essential to a good set, especially so in the case of very vigorous plants. Attend regularly to the setting of the blossoms. Stop the shoots, however, one joint beyond the blossom when impregnated, but after the fruit is set remove all superfluous growths. Avoid giving stimulants to plants until the fruit is swelling, when liquid manure may be afforded liberally, especially to plants carrying heavy crops, until they are well advanced towards ripening. Maintain a night temperature of 70°, 70° to 75° by day, and 80° or 90° with sun heat, when the plants may be syringed lightly, except such as are in flower. Watch for canker at the collar, and rub it out with fresh slaked lime when it makes its appearance.

THE FLOWER GARDEN.

Shrubby Calceolarias.—There have been very few losses among these this season, and all are now growing strongly. Left much longer in the cutting beds the greater portion will be spoilt, and the sooner, therefore, they are temporarily bedded out the better. If there are only a few dozen plants these may be transferred to shallow boxes of rich soil in preference to potting off singly into 5-inch pots, as there are often many failures in the case of the latter after they are finally bedded out. For larger quantities a rough frame or turf pit ought to be prepared, placing in this, on a hard bottom, 4 inches or rather more of old hotbed material, making this quite firm, and placing on the top of it 2 inches of loamy soil. In this the Calceolarias may be planted about 6 inches apart each way, and if duly protected with either lights or mats and otherwise attended to, extra strong plants will be available for bedding out, and which will move with a good ball of soil about the roots. Top the plants once only, and that a few days prior to moving them from the cutting beds.

Lobelias.—Evidently the seed was well matured last season, for it never germinated more quickly and surely. The seedlings being much crowded ought first to be pricked out 2 inches apart each way in shallow boxes of good fine soil and kept in gentle heat. They must be topped early, and when neat little plants are formed these may well be transferred to beds of fairly rich soil in frames or pits, disposing them not less than 4 inches apart each way. If there is a little bottom heat so much the better, and in any case they ought to be kept somewhat close and warm till all are growing strongly. Being kept from flowering, strong stocky plants altogether superior to anything in pots or crowded in boxes will be ready by the end of May. Divisions and cutting-raised plants may be similarly treated.

Perennial or Herbaceous Lobelias are very fine for either flower beds or borders, well repaying for any little trouble needed in their cultivation. Plants from seed sown in gentle heat would be too late to flower this season, but they might prove most serviceable next spring. Seedlings now well advanced in growth to be pricked out either in boxes or pans of good soil or potted off singly, and if kept in gentle heat till well established, then duly hardened and planted out, the greater portion will flower late in the summer. Old plants wintered under glass ought ere this to have pushed up numerous strong suckers, and each of the latter that may be separated, with a few roots attached, from the old stem will make a good flowering plant this season. Either place these divisions in boxes or pot off singly into 3-inch pots. Plant out early. Seedlings varying in character considerably should first be planted in mixed borders, the divisions obtained from named or selected varieties being the best for beds.

Tuberous Begonias.—Those intended for bedding out ought never to be placed in pots, this remark applying both in the case of seedlings and old bulbs. Prick out the former first rather thickly in pans of light fine soil, and from these transfer to larger boxes or pans, arranging them about 4 inches apart each way. They grow more strongly in and move more readily out of boxes of fairly rich compost, and if kept in gentle heat till they are nearly large enough to put out, being then properly hardened off, an early and continuous display of bloom may reasonably be anticipated. Old bulbs to be also started in boxes or frames of rich but not heavy compost, from which all can eventually be transplanted with good balls of soil and roots, the latter soon taking possession of the soil in the beds. Little or no heat is needed for these old bulbs, but care must be taken not to sour the fresh soil by over-watering at the outset.

Zonal Pelargoniums.—It is a great mistake to cut down autumn struck plants for the purpose of obtaining cuttings, as they seldom make good progress afterwards. Top them once or twice if dwarf bushy plants are needed, but if all are put out in a slanting direction and perhaps pegged down it is not advisable to stop them, spreading plants filling up best. It is the old plants stored thickly in pots and boxes that should be freely cut up, every shoot from these striking readily, and can be grown to a good size by the end of May. Spring struck plants of the variegated forms are in some respects superior to those raised in the autumn, and cuttings of these may be taken up to the end of April, or even later. A rather dry position, such as an old flue or a staging over the hot-water pipes in a vinery, is what suits Pelargonium cuttings, water being given rather sparingly at the outset. All experience the least check when planted out from small pots, but if the latter are not sufficiently plentiful let the more delicate variegated varieties have the benefit of them.

Annuals.—The present is a good time to sow Asters, Stocks, Zinnias, and Helichrysums in gentle heat, but Marigolds, which germinate quickly and grow rapidly, ought not to be sown for another fortnight.

THE BEE-KEEPER.

NOTES ON BEES.

THE WEATHER.

FROM April the 6th to the 11th the weather was raw and frosty, 2° being registered every night until the last-named date the thermometer sank to 19½° Fahr. Slight showers fell, but not so much as in any way to retard outdoor labour; but the foliage of trees and bushes have a sickly hue, and it is to be feared fruit blossoms may suffer. Bees are still advancing, but have been for a week kept well within doors, and although honey gathering ceased there has been no loss of bees. Everywhere I go bees are in a forward state, the result of favourable weather, and being put up for winter with ample provisions. To all appearance swarming will be general in May.

FEEDING.

This must not be neglected, as the numerous young bees now creeping out of the cells daily demand large supplies of food, more than is generally gathered until May is out, and even then must not be neglected unless the weather is fine. Hives allowed to go back from now till honey comes in plenty will remain unprofitable throughout the year.

DRONE COMB.

The health and laying condition of the queen regulate worker combs, but it is not always safe to trust entirely to this. Queens have laid eggs long already, and when Nature demands a rest the bees fill up all gaps with drone combs. To avoid this the bee-keeper should fill all spaces with comb or comb foundation that may be considered unnecessary to be filled with drone comb.

QUEEN REARING.

This may be begun earlier than in former years, and as youthful, fertile, and healthy queens are the foundation of profitable bee-keeping, care and attention should be paid to have these in sufficient numbers to meet all requirements, and raised in the most natural way possible. Never raise queens for stock from a hive that has been queenless for a length of time, as the bees are liable in such cases to bring forward imperfect queens. Always select a good and strong hive. The queen may be simply removed, but it is better that a swarm should issue or be taken artificially, thereby removing the older and leaving mostly young bees behind, which are Nature's queen rearers.

SIZE OF THE HIVES.

Where common-sense bee-keepers have wintered the bees in full-sized hives, except when two swarms are united, it is unnecessary to put a single swarm into a hive of similar dimensions at the first, especially where super comb is wanted, two divisions of the Lancashire divisioned hive being sufficient, but it should be enlarged to its full size on the introduction of a young queen. Then it is in the best of condition for late and abundant honey gathering.

EXTRACTING.

Where extracted honey is wanted, full sized supers are the best to employ, as the combs being shallow the bees fill and seal them more quickly than they do deeper frames, and honey should on no account be extracted until the combs are sealed.

JARRING HONEY.

Although the screw cap has a neater appearance than the tie-over jars, they are not so well adapted for keeping preserves unless hermetically sealed. A simple and effective way of doing this is to cut pieces of foundation or plain and perfect sheets of wax into proper sizes, laying one upon a board previously steeped in water and heated a little. Press it firmly to the top of the jar and it adheres, making a complete air-tight seal. Tie-over jars should be treated in the same manner before the parchment is tied. A gentle-

man who had some of our wild Thyme honey a few years ago, kept it in an air-tight jar for some years, and every time it was opened he informed me the dining room was highly perfumed from its fragrance. The new fangled methods of treating honey has done much to lessen the demand.

SHEETING SUPERS.

Filling sections and supers with full-sized sheets of foundation too has had a similar effect, and has tended more to the reduction in price than increase of production has done. With all the points as a standard for judging honey put forth by our savants, the most important one of rejecting comb showing the midrib of foundation has been omitted!—A LANARKSHIRE BEE-KEEPER.



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fungus (*Fungi*).—What you send appears to be a malformed example of the Morel, *Morella esculenta*, and if so it is, as its specific name indicates, edible. We are, however, not positive on the identity of the imperfect specimen. You should have stated the conditions under which it was found growing.

Warts on Vine Leaves (*R. B.*).—The granulated appearance of the leaves sent is the result of sap extravasation through the epidermis. The warts are injurious as impeding respiration. The affection may be caused by too much moisture in the atmosphere with heat. Mr. William Thomson, in his practical essay on the Vine, says he can produce or prevent the affection by a close, warm, and too moist atmosphere in the former case, and a free circulation of air with moderate moisture as a preventive.

Dandelions in a Lawn (*H. E.*).—It is useless cutting out the plants and leaving a good portion of the roots in the ground, as fresh growths will be sure to push from them. Two or three drops of sulphuric acid (oil of vitriol), kept in a stone blacking bottle, and drawn out in notches cut in the end of a stick, and placed quite in the hearts of the plants will burn out the roots, but the acid must not touch boots, clothes, or hands, or it will burn them too. We have seen thousands of Dandelions destroyed in the manner described. The work should not be entrusted to women or boys.

Pruning Marechal Niel Rose (*J. R. N.*).—You may not only cut back what may be termed the lateral growths, or shoots which have produced flowers, to good buds nearly close to the main stem, but you may cut back the stem to any desired extent in case the upper part is not so strong and healthy as you may wish. By syringing freely twice a day in dry weather, and maintaining a genial atmosphere, fresh growths will soon start, and the plants being healthy and kept clean the shoots will become strong enough and firm enough for producing flowers in abundance next year. As a rule, the closer the pruning the better the resulting growth.

Stephanotis Flower not Lasting (*J. T. W., Deal*).—When the plant is grown in a hot moist house and the flowers are cut and taken direct to a cold or dry room it is not surprising that they fade quickly, and this is often the cause of Stephanotis lasting so short a time. If the flowers are cut in the morning with the sun shining upon them they are not so likely to last well as if cut in the evening, or at least when the sun is off the house. They might be cut and placed for a time in a slightly cooler place before being used, and you cannot have anything better as packing material than clean fresh moss. This may be covered with tissue paper if there is danger of soiling the flowers. If the plant is healthy as you say and flowers freely do not remove it, for you would find it difficult to secure a substitute as useful.

Vines from Cuttings (*A. C.*).—If the cuttings you inserted in the spring of 1888 have made no growth we should think they are dead.

Cuttings inserted too late in the spring, and then not deep enough, often fail. Well ripened portions of young wood should be chosen for cuttings, and inserted immediately the leaves fall. They may be 8 or 9 inches long, removing all the buds but two at the top, and only this portion should be above ground, the longer portion in it in a slanting position, with sandy soil pressed firmly round them. When a trench is made for the cuttings it is a good plan to place a quantity of sand in it and press the cuttings down in it. You may try some now, and if only one or two buds are above ground some of the cuttings may perhaps grow. The wood must be firm, and if secured with a heel of last year's wood they will not be less likely to emit roots.

Fungus on Vine Roots and Leaves (T. E. H.).—The roots sent are infested with a fungus. This is the result mainly of too rich soil. The root appears to have been taken from a mass of wet humus. Firmer, stronger soil is needed by Vines. Perhaps the best thing you can do now is to give the border a heavy dressing of newly slaked lime, spreading it on a quarter of an inch thick, and lightly pointing it in. Then when the surface is dry, not otherwise, tread it firmly. The leaves sent are much deficient in texture and unable to purify the crude sap and secrete nutrient matter, hence the exudations which have been taken possession of by another fungus. Employ less moisture both in the border and atmosphere, discontinue the use of liquid manure, and maintain a buoyant atmosphere by judicious ventilation. Possibly the Vines may be too heavily cropped, and it is certain they are in a very unsatisfactory condition.

Destroying Woodlice (G. H.).—The most wholesale mode of riddance is to place some boiled Potato round the inside of the frame or pit on the surface, and cover with a little hay loosely. Do this as a bait for a couple of nights, and in the morning of the second night have some boiling water in a watering pot, and pour it through the spout on the hay around the sides of the pit or frame. This will not do any harm to the plants provided it is not used upon them, or even to their roots, unless used in excessive quantity. It may be necessary to repeat it in the course of a week, which the presence or otherwise of the pests will determine. Some baits formed by placing a boiled Potato wrapped loosely in a little hay in a small flower pot laying on its side near the haunts of the woodlice in the evening, and in the morning shaking the vermin into a bucket of scalding water from the hay in which they will be secreted after or still feeding on the Potato. This persisted in will eradicate them. A toad introduced will devour great numbers, and is an aid in the destruction of woodlice too seldom called into requisition.

Culture of Justicia calytricha (T. S. C.).—You are right, it is one of the most beautiful plants that can be grown for the decoration of the conservatory or intermediate structures from December until the end of March. The beautiful light feathery plumes of this plant last a long time, and after the first flowers fade a second crop is produced. This plant must be grown on from cuttings annually, for old plants seldom grow with such vigour or produce such large plumes of flowers as young plants. Old plants from their slow stunted growth often become a prey to scale, which is not the case where plants are raised from cuttings every year, provided they are not grown too warm. Old plants that have flowered should be pushed into growth in a warm house, for the sooner cuttings can be obtained the better. When strong cuttings have been produced they should be inserted singly in small pots, and if kept close in the propagating frame every one will root. They should be grown warm until they are established in 8-inch pots, and from this stage an intermediate temperature should be given them. After the middle of July they should be grown in cold frames.

Culture of Nertera depressa (J. R. W.).—The following is the note you require:—"I have grown it for the last few years as follows:—The plants were kept in a greenhouse until the berries died away, when some plants were started for the succeeding year. This would be in autumn about the end of August. Pans about a foot in diameter were well drained and filled up with soil, the soil being put in firmly and slightly raised above the level of the pots, small pieces of the Nertera being pricked in like seedling plants or cuttings. The pans were then set on a shady shelf in a stove, keeping the plants moist at the root, and syringing over the tops. After the plants had filled the pans they were removed to a cool vinery, only supplying sufficient water to keep the plants moist and in a fresh condition. The soil I used was similar to what young Cinerarias will thrive in—a mixture of loam, leaf mould, decayed manure, and sand. In spring to start the plants into growth they were put on a shelf near the glass of a Peach house, and watered overhead sometimes three or four times a day, according to the weather. On this shelf the pans remained until the berries began to colour, when they were removed to the greenhouse. With this treatment as fine specimens were produced as could be desired, and they were particularly noticed by visitors."

Bed for Carnations (J. B. N.).—As the position on the south side of a wall will, perhaps, be hot and dry in the summer, you must provide a depth of at least 2 feet of good soil for the plants. It does not follow that the present soil need be excavated to that depth, as it may probably suffice to clear out the stones and rubbish down to the heavy loam, then break this up well and enrich it with manure, also spreading on a good thickness of manure before filling up with fresh compost. This should be 18 inches in depth. There is no better soil than turfy loam, inclining to heavy rather than light, that has been in a heap for six months or more, and perfectly free from wireworms that are not infrequently present in loam recently dug from a pasture. To five barrowfuls of loam add one of decayed manure—that from a cow

stable preferably—dry enough to be broken into small particles for mixing, half a barrowful of wood ashes and the same of vegetable refuse, with an 8-inch potful of soot and the same quantity of bonemeal. Turn the whole a few times, or till the ingredients are uniformly incorporated. Provided the compost is neither very wet nor very dry when placed in the bed, and is pressed down rather firmly, it should grow Carnations well. It may be desirable to cover the surface of the bed between the plants 2 inches thick with very short manure, or if you prefer something that may be deemed more presentable, with cocoa-nut fibre refuse. The sooner Carnations are planted the better, and they should be strong, and now established in pots for flowering well this year. They can then be planted without any material disturbance of the roots, and great care must be taken that the balls of soil from the pots are not by any means dry, neither excessively wet, when inserted.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*H. S. Easty*).—*Ornithogalum nutans*. (*B. B. K.*).—*Aucuba japonica*, var. *longifolia*. The seeds appear to be sufficiently ripe for sowing. (*J. J.*).—*Begonia peltifolia*. (*B. C.*).—A variety of *Anemone hortensia*. (*G. R. S.*).—1, *Asplenium Ruta-muraria*; 2, *Asplenium viride*. (*E. C.*).—The plant of which you send a drawing is probably *Tillandsia setacea*.

COVENT GARDEN MARKET.—APRIL 23RD.

TRADE better with good supplies.

		FRUIT.			
	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2 0	to 6 0	Oranges, per 100	4 0	to 9 0
" Nova Scotia and			Peaches, dozen	0 0	0 0
" Canada, per barrel	18 0	25 0	Red Currants, per ½ sieve	0 0	0 0
Cherries, ½ sieve	0 0	0 0	Black	0 0	0 0
Grapes, New, per lb. ..	5 0	7 0	St. Michael Pines, each ..	2 0	8 0
Lemons, case	10 0	15 0	Strawberries, per lb. ..	3 0	6 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	0 0	to 0 0	Mushrooms, punnet	1 6	to 2 0
Asparagus, bundle	2 0	3 0	Mustard & Cress, punnet	0 2	0 0
Beans, Kidney, per lb. ..	1 6	0 0	Onions, bushel	3 0	4 0
Beet, Red, dozen	1 0	2 9	Parsley, dozen bunches	2 0	3 0
Brussels Sprouts, ½ sieve	0 0	0 0	Parsnips, dozen	1 0	0 0
Cabbage, dozen	1 6	0 0	Potatoes, per cwt.	3 0	4 0
Carrots, bunch	0 4	0 0	" New	0 2	0 4
Cauliflowers, dozen	2 0	4 0	Rhubarb, bundle	0 2	0 0
Celery, bundle	1 0	1 3	Salsafy, bundle	1 0	1 6
Coleworts, doz. bunches	2 0	4 0	Scorzenera, bundle	1 6	0 0
Cucumbers, doz.	2 0	3 6	Seakale, per bkt.	1 0	1 3
Endive, dozen	1 0	0 0	Shallots, per lb.	0 3	0 0
Herbs, bunch	0 2	0 0	Spinach, bushel	1 0	2 0
Leeks, bunch	0 2	0 0	Tomatoes, per lb.	0 6	0 9
Lettuce, dozen	0 9	1 3	Turnips, bunch	0 4	0 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Anemone, dozen bunches	1 0	to 4 0	Maidenhair Fern, dozen		
Arum Lilies, 12 blooms ..	2 0	4 0	bunches	4 0	to 9 0
Azalea, dozen sprays	0 5	0 10	Mignonette, 12 bunches ..	2 0	4 0
Bouvardias, bunch	0 6	1 0	" Fr., large bunch	1 6	2 0
Camellias, dozen blooms	1 0	4 0	Narcissus, 12 bunches ..	2 0	6 0
Carnations, 12 blooms ..	1 0	2 0	Pelargoniums, 12 trnses	1 0	1 6
Cowslips, dozen bunches	0 6	1 0	" scarlet, 12 bunches	4 0	6 0
Daffodils, dozen bunches	2 0	6 0	Primroses, dozen bunches	0 4	0 8
Deutzia, per bunch	0 4	0 6	Primula (double) 12 sprays	1 0	1 6
Eucharis, dozen	4 0	6 0	" (single) 12 sprays	0 0	0 0
Forget-me-not, doz. bnch.	3 0	6 0	Ranunculus, doz. bunches	2 0	4 0
Gardenias, 12 blooms ..	3 0	5 0	Roses (indoor), dozen ..	1 6	3 0
Hyacinths (Dutch), in			" Red, 12 blooms ..	2 0	4 0
boxes	1 6	3 0	" Tea, white, dozen ..	1 0	3 0
Hyacinths (English), doz.			" Yellow	2 0	4 0
bunches	3 0	6 0	Spiraea, dozen bunches ..	6 0	9 0
Hyacinths (Roman) dozen			Tuberose, 12 blooms ..	1 6	2 0
sprays	0 6	1 0	Tulips (Eng.), doz. bnch.	4 0	6 0
Lapageria, 12 blooms ..	2 0	4 0	Violets, dozen bunches ..	1 0	2 0
Lilium, various, 12 blms.	1 0	3 0	" French, per bunch	1 0	2 0
" longiflorum, 12 blms.	4 0	6 0	" Parme, per bunch	3 6	5 0
Lily of the Valley, dozen			Wallflowers, doz. bunches	2 0	4 0
sprays	0 6	1 0	White Lilac, French, per		
Marguerites, 12 bunches	2 0	6 0	bunch	4 0	5 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6 0	to 12 0	Ficus elastica, each	1 6	to 7 0
Arum Lilies, per dozen ..	8 0	12 0	Foliage plants, var., each	2 0	10 0
Arbor Vitae (golden) doz.	6 0	14 0	Genista, per dozen	8 0	12 0
Azalea, various, per dozen	18 0	30 0	Hyacinths, 12 pcts	6 0	9 0
Christmas Rose	0 0	0 0	Lily of the Valley, 12 pots	12 0	18 0
Cineraria, per dozen ..	6 0	10 0	Marguerite Daisy, dozen	8 0	12 0
Cyclamen, per dozen ..	9 0	18 0	Mignonette, per dozen ..	6 0	10 0
Daffodils, 12 pots	6 0	9 0	Musk, per dozen	4 0	6 0
Deutzia, 12 pots	6 0	9 0	Myrtles, dozen	6 0	12 0
Dracæa terminalis, doz. 24	0 24	0 42	Palms, in var., each ..	2 6	11 0
" viridis, dozen	12 0	24 0	Primula (single), per doz.	4 0	6 0
Epiphyllum, per dozen ..	0 0	0 0	Rhodanthe, per dozen ..	8 0	10 0
Erica, Cavendishi, per pt.	2 0	3 0	Roses (Fairy), per dozen	8 0	10 0
" various, dozen	12 0	18 0	" 12 pots	12 0	24 0
" ventricosa, per doz. 15	0 15	0 24	Saxifraga pyramidalis,		
Euonymus, var., dozen ..	6 0	18 0	per dozen	0 0	0 0
Evergreens, in var., dozen	6 0	24 0	Spiraea, 12 pots	8 0	12 0
Ferns, in variety, dozen ..	4 0	18 0	Tulips, 12 pots	6 0	9 0

Bedding Plants in variety, in boxes and pots.



SHEEP.

Now that the lambing is ended once more even among the latest flocks special attention may usefully be drawn to points of practice which are always important, and which go far to ensure successful results both with lambing and general flock management. Sheep are hardy animals—able to endure much exposure, to bear much neglect; but there is a limit even to the powers of endurance in a sheep, and it has been proved beyond question that losses to a very serious extent have been caused solely by mismanagement.

Let every flockmaster, and every shepherd too, ask himself, How has the lambing gone this season? If there were cases of abortion, was the reason known or was it doubtful? An occasional case of abortion may occur in any flock, but it is when abortion becomes rampant and dozens of lambs are lost that it becomes evident the management is at fault. One safeguard against abortion is to mark every doubtful or faulty animal during the lambing, or immediately after it is over, for drafting from the flock when the lambs are weaned. Mark also all full mouth four-shear ewes, and do not be tempted to keep them for that other lamb, as has so often been done, for the result is to say the least decidedly speculative. Rather resolve to draft all ewes at the proper age, and to keep up the number by annual selections of the best ewe lambs. Were this a fixed rule in all established flocks there would be much less risk of loss, and results generally would be altogether better.

When Professor Axe went into Lincolnshire to inquire into the cause of the outbreak of abortion before and during the lambing season of 1883, he found foot-rot rampant in the flocks of that county, and in his report he says, "That animals should give up the fruits of conception when tortured by the pain and suffering which extensive and unprotected ulcers of the feet entails, is no matter for surprise," and he adds, "especially when, as in the present case, they are worn down by exposure, fatigue, and the pernicious influence of a cold ungenerous diet." That exposure and low diet was mentioned to mark the evils of folding pregnant ewes on Turnips. In this instance, of 7800 ewes fed exclusively on Turnips, 22 per cent. aborted, and of 13,800 others receiving more substantial food, only 6 per cent. were so affected. Of the 51,475 ewes comprised in this inquiry, 6234, or about 12 per cent., aborted, and 1494 died. Foot-rot may be kept down by incessant watchfulness and care, so that the general health of the sheep is not seriously affected, and in so mild a form it will not cause abortion. But at the date of the inquiry the practice among the Lincoln flocks was of a very rough-and-ready description. The report says that the soil of the folds was worked up into a veritable puddle, or, what is worse, an impassable slough, rendering the recumbent posture all but impossible, and the poor beasts, with their heavy burden of young, stood in mud over their hocks and knees for many successive days, and some are stated to have got down in the mud and were obliged to be killed in the last stage of exhaustion.

Most lamentable was the mismanagement, the misery, and sufferings of the poor animals, and the heavy losses it caused. Really, one would suppose flockmasters who could suffer such a state of things to exist must not only be blind to their own interests, but also sadly deficient in practical knowledge, to say nothing of common prudence and the dictates of humanity. In his "Recommendations" Professor Axe placed much stress upon the importance of shelter against cold winds and driving rains. He was right, and we repeat here that every field or meadow used for sheep should have shelter in the guise of open commodious

edges, and we know no better structures for this purpose than the modern ones, with sides and roofs of corrugated iron sheets.

The sowing of root crops has begun again in view of the provision of food for another winter. If the roots can be consumed upon the land it is altogether best, but do let us try so to manage that there shall be no compulsory folding in unfavourable weather, and no use of roots for pregnant ewes. With draft ewes, store hoggets, and ewes with the lambs we may surely manage to get through our folding and root consumption. The old plan of following hoggets with pregnant ewes to consume Turnip shells left by the hoggets must be abandoned. Much better is it to cut up the "shells" with hoes as the hoggets are withdrawn and plough them in, for they are excellent manure. Instead of sowing so many roots that the ewes must be fed with them, rather let us resolve to reduce the root crops within reasonable limits, to have more Cabbages and Kale, and to make as much silage as possible, for in it we certainly have sound wholesome food good for ewes or any other animals.

WORK ON THE HOME FARM.

The two-year-old colts intended for use are gradually being broken to work. This enables us to keep mares with foals from being worked too early. Colts require gentle handling and much patience. Leading is taught early. They are placed singly in a team of steady horses with equally steady men out upon the land first of all, and are fairly settled to work before they even leave the farm for road work. Many colts prove troublesome when first shod, and by way of precaution we usually have this done when a colt is tired from a long day's work. Very seldom indeed is it that we have any trouble with a mare in foaling. Our favourite arrangement for brood mares is to let each of them have a commodious lodge with a sliding door on small wheels or runners, so that when the lodge is open the door cannot blow-to or become partly closed, and so become an obstruction, and perhaps cause injury to mare or foal. When closed the lodge is practically an admirable loose box, with just a manger, rack, water trough, roof ventilator, and window for the admission of light only, either well protected with iron bars or else high up out of reach. The lodge opens into a small yard enclosed by posts, rails, and stout boards resting upon brick footings. This sort of enclosure answers better than brick walls or corrugated iron, both so liable to injury from horses. In front of the yard is a paddock, so that by this arrangement we have the lodge, yard, and paddock always available, and the mare may foal in either place according to the state of the weather. When a mare is exhausted by foaling it has a gallon of gruel with a pint or two of ale; bran mashes and corn are given for about a week after foaling, and then the ordinary diet is resumed.

A certain number of new hurdles are required each year, and we like to have our supply now, so as to use them for sheep folding of roots now and green crops later on. As corn and other crops spring up sheep will break out if there is a weak or badly set hurdle in a fold, and a few acres of corn are soon spoilt. We allow the shepherd to use no old hurdles where it is possible for sheep to do harm, and take care to see that his folds are well set.

Winter Beans, on heavy land especially, have lost plant since the severe weather of the first week in March, in some parts to such an extent that Oats are being drilled to fill up the vacant places. This is all the more provoking as the Beans were exceptionally promising, but after a mild moist winter there is always considerable risk of loss from a sudden change to colder weather. We shall revert to this flaw in the Bean crop next week, as we have heard doubts expressed as to the cause.

METEOROLOGICAL OBSERVATIONS.

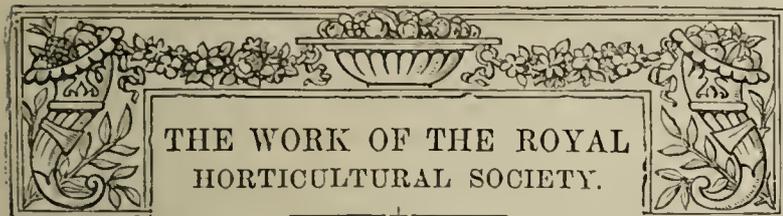
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Baromet- er at Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890.	Inches.	deg.	deg.	E.	deg.	deg.	deg.	deg.	deg.	In.	
April											
Sunday	13	29.678	44.2	38.8	E.	42.9	51.2	31.9	82.9	24.1	—
Monday	14	29.512	48.7	43.4	E.	42.9	57.9	39.7	103.7	32.3	0.028
Tuesday	15	29.47	49.7	46.0	E.	45.0	60.3	44.2	102.3	41.1	0.310
Wednesday ..	16	29.377	52.8	50.0	E.	46.9	58.9	45.2	94.3	44.6	0.010
Thursday	17	29.451	49.1	47.4	N.E.	46.9	58.1	43.1	91.0	37.1	0.053
Friday	18	29.579	42.0	42.0	N.E.	43.4	46.4	41.5	49.9	42.0	0.017
Saturday	19	29.883	42.1	40.0	E.	44.9	46.3	39.9	37.2	39.9	—
		29.555	43.9	43.9		45.1	54.2	40.8	83.0	37.3	0.418

REMARKS.

13th.—Bright and cold.
14th.—Bright day; slight showers in evening and night.
15th.—Cloudy early; bright, mild morning; a little cloud in the afternoon; wet night.
16th.—Cloudy and mild, with slight showers in morning.
17th.—Overcast all day; damp evening.
18th.—Drizzle all the morning and in the evening; overcast afternoon.
19th.—Dull and damp early; cloudy morning; fair afternoon, but no bright sunshine.
The average range of temperature has been less than usual, the maximum on two days being below 50°. There was a sharp grass frost on the 13th. Barometer rather low, but with easterly winds.—G. J. SYMONS.



WHATEVER the ultimate results may be no one can venture to question the endeavours of the Directors of the Society to make its influence felt in the horticultural world. Its policy is distinctly progressive, and the most active workers on the Council do not spare themselves in seeking to provide the Fellows with the best that can be given in return for their support. Whether it is actually the "best" that could be produced is perhaps a debatable question, but the intention is not the less apparent. Not only has there been a considerable increase of Fellows of late, but not a few of the horticulturists now enrolled are evidently ready and willing to render service to the Society in any way they can. The Committees are earnest in the discharge of their duties, although now and then incidents are said to arise that are not the most conducive to harmonious co-operation. It may be that humble workers who do their best to aid are over-sensitive, and there is always the possibility of activity being misinterpreted for mere interference. Be that as it may, it is to be hoped that pushing and peddling in high positions or low will never interfere with the smooth working of the component parts of which this, in common with all societies, are constituted.

The increased support that has been given to the Royal Horticultural Society by the press and the public has been based on the assumption that, in the discharge of its functions, action would be taken on broad lines, and that something more than an ever recurring series of small shows, attended by a miserably small number of visitors, would be provided. Periodical meetings, as such, and held for distinctly technical purposes, are desirable, useful, and even essential, but to magnify these meetings into "shows" in the hope of attracting the *élite* of London society cannot be regarded as other than delusive. Nothing is more quickly determined by the educated portion of the community than the difference between the general competitive gatherings of the best men and best produce in furtherance of good objects and mere trade bazaars. It is no fault of business men that they avail themselves of such facilities as they find for presenting their wares to each other, and where their character will reach the ears of the outer world. They would be very remiss if they did not, but the fact remains that neither bunting nor board men can compel the public to rush to the Westminster Drill Hall to admire "shows" of that character. The "genial faddists" to slightly alter a Blackmorean phrase, convinced themselves that such would be the result of a spirited Hall policy, but the hope, as some of the quiet observers anticipated, has proved futile. The difference between a legitimate exhibition and ordinary fortnightly "shows," as estimated by the public, was apparent last week on the occasion of the National Auricula Show, when for the first time during the season the attendance was satisfactory. It was a pleasure to see such a gathering; also encouraging, for if the public will flock to see a real show of flowers in a back street, what may we not expect if a hall for horticulture becomes established in a commanding position? But mere "banks" of flowers and collections of fruit of a non-competitive character, and distinguished by the name of "shows," are not what the public expect in these days, and it is well known that visitors to these "shows" have gone away disappointed, and have not induced their friends to give their patronage to such gatherings.

Yielding to none in the intensity of our desire for the prosperity and usefulness of the Royal Horticultural Society, we have not been able to acquiesce in what may be termed the Drill Hall policy; and though some of our references to the building at one time did not meet with the unanimous applause of all our friends, we stopped very far short of Baron Schröder's comparison of the building to a "dust-bin." We thought from the first acquisition of the volunteers' rendezvous that it would cost more than it was worth, and we suspect such is the fact, and we shall be heartily glad if the requisite support is given to Baron Schröder to enable him to carry out his project.

We have not seen any statement of accounts in which the costs and revenue of the Drill Hall are clearly set forth. In the revenue account "cleaning" is connected with rent, but no allusion is made to labour, though this must be a considerable item. Is it included in the Chiswick Garden expenses, and if so, why? This question has been suggested by a gentleman of a somewhat high position in the horticultural world, and he is of opinion that Chiswick has been made to appear as costly as possible, and he thinks the "&c." attached to the extraordinary amount charged for implements, considerably more than £100 during the year, is not so clear as it should be. He asks, "What are those implements?" and the question appears to be a perfectly legitimate one.

Rightly or wrongly, the feeling is not obliterated that the Council of the Society are not in deep sympathy with Chiswick. In the report it is specially singled out for its cost, though nothing whatever is said about the cost of the Drill Hall, yet it is not beyond the bounds of probability that Chiswick has helped the Hall materially, and is accorded no credit for it. Again, attention is markedly called in the Report to the unsatisfactory attendances at the Chiswick conferences, though no correlative allusion is made to the greater paucity of the visitors to the fortnightly "shows" at Westminster; and it would be interesting to know what the payments have been to these meetings by the visiting public. With all its cost it is a question if the "return" to Chiswick is not greater in proportion than that to the Drill Hall in relation to the outlay, including the medals so generously "recommended" there, though perhaps they are not all granted; and beyond all doubt a large number of the Fellows, and especially those who have become so during the past two years, consider Chiswick the backbone of the Royal Horticultural Society.

They would like to see the London expenses reduced rather than the gardens should suffer, and they will not think that the great cost of the new *Journal* of the Society will be justified if the maintenance of the gardens is likely to be imperilled. The production of the series is a well-meant effort, but there is room for a compression in bulk and improvement in quality; and a change in both those respects would reduce the cost and enhance the acceptability of the issues. The last issue contains a great deal of worthless matter on Chrysanthemums, while several of the "papers," though good, are no better than nor different from articles which appear in the weekly gardening press; only two or three, of which Mr. Burbidge's may be taken as a type, are distinct from ordinary garden literature. It is the same in the vegetable department, and with the exception of Mr. Veitch's address, and perhaps Mr. Laxton's contribution on Peas, the remainder might have been either dispensed with or materially condensed—not because, as we have said, the matter is not good, but because the Society is not rich enough to indulge in the luxury of circulating matter of a kind which ninety out of a hundred of its supporters can and do find when they want it in weekly periodicals.

The *Journal* of the Society as now issued is not sufficiently distinct in character, nor by any means such a well finished production from a scientific, literary, and editorial point of view as it ought to be, and unless it improves in all those respects it cannot be long considered as worth the money it costs. A copy has been sent to us in which several errors are pointed out, including the

thrice mentioned name of Monsieur Henry de Vilmorin, in each case differently and in all inaccurately; and that Hortus Kewiensis was allowed to "pass" is at least surprising, while the name of Mr. Donald Munro given as Mr. Douglas Munro is more surprising still.

It would be tedious to point out all the imperfections. The reference to their existence is needed, and that may perhaps suffice. We give all credit for good intentions, but good judgment and good workmanship are essentials in the successful conduct of a Royal Society, or there is danger of too much being done in one direction and too little in another, for the true interests of the Society, which we desire to see prosperous and strong.

FORM

THERE is a sense in which form is employed which will not be touched on in the present article. I refer to the "form" which florists and plant growers strive for respectively in their flowers and specimens. Possibly the tone of what follows might be thought to condemn the work of both, and it may therefore be as well to say here that the point of view from which the subject is regarded precludes either praise or condemnation. The extraordinary strides which gardening is taking towards the purely decorative in conjunction with the artistic tastes of present everyday life brings the question of form increasingly to the front. We all have to study it, though no doubt there are those who do so without giving it the position which it is its right to occupy. Colour alone for a long period occupied the mind of the gardener, and he massed colours in blocks, or in contrasting lines in the garden beds and borders, and under the same principle, though with necessary modifications, employed flowers in greenhouses, and in vases and bouquets. But colour has been slowly and surely losing its supremacy, and in few gardens I should imagine occupies the absorbing position it did. We shall never expel bright and cheerful colours from our gardens and homes, but they must come to occupy the position of handmaids to form.

It is indisputable that to-day we have a greater range of plants to select from than at any other period in the history of gardening. Hardy plants themselves form a host, which the worst equipped garden can freely employ: and where wealth abounds taste may in addition call in the help of tender plants almost without limit in their variety. If we first of all take into consideration the decorative plants of the garden we find them roughly divided into two sections, the one like the purple Heather spread over broad moors and upland ranges, distinctly carpeting plants; the other, like Daffodils, rising in clumps from the daisied turf, the representative of form in plants. There is space enough and to spare for both sections. For broad masses of single Snowdrops and Winter Aconites in earliest spring; for Primroses, Polyanthus, Squills; for dwarf Bellflowers, Pansies, Sedums, Saxifrages; for Lobelias, Calceolarias, Pelargoniums, Paris Daisies, and Dahlias; for these and many more. But besides these there are noble plants which must be seen standing clear of all others, or springing from an undergrowth of spreading living green. Such we find in the numerous bulbous plants which flower in summer and autumn; the commoner Lilies, Hyacinthus candicans, Gladiolus, Montbretias, Irises; also Chrysanthemums, tall Carnations, Hollyhocks, Japanese Anemones, Spiræa Aruncus, Sunflowers, tall Enocheras, Lupines, Tritomas, Golden Rods, and many others. All these have a beauty of form apart altogether from the colour of their flowers, and to crush them into borders in graduated order from front to back is not the happiest method of treating them. The most glorious of all hardy flowering plants is the Hollyhock when allowed to carry five or six main spikes with branching side shoots, but if crushed up and tied together to allow other three or four tall growing plants room to perform their restricted duty the whole of its beauty is destroyed. Then how distinct in habit is the common Tiger Lily when allowed to grow in its own way, and a clear space left to see it all round. Among Irises, too, there is an infinite variety, from the grass-like ruthenica to the broad-leaved pallida. To hide the beauty of form in any way is to lose one of their greatest charms. What charming plants are the Montbretias! Even without flowers they would be worth showing off, but with the flowers how beautiful their "form." Take the vast group of Gladiolus. How graceful the tall byzantinus! And almost the whole of Lemoine's earlier hybrids are most distinct in form. Then take the common Solomon's Seal set in a prominent position with nothing but dwarf plants round it, and what can excel for beauty of form its bending wreath of flowers in early summer or of beaded fruits in autumn? We have no need to call in the aid of tender exotics when these

and so many other plants with leaf and flower are ready at hand if properly arranged to yield a new form of beauty.

To hothouse plants very much the same remarks apply. We can pinch and train the Fuchsia, and make beautiful specimens; but a freely grown young specimen allowed its natural bent will not yield for beauty of form. Then, what so graceful as well-grown pyramidal Celosias? And Carnations, especially the strong-growing kinds, such as Comtesse de Paris and the Malmaisons grown naturally and without pinching, are most beautiful in form and adapted for decorative work. Or if we select Crotons, what a wonderful amount of beauty of form in this one family. Tall single-stemmed plants of the Wiesmanni or Warreni class and branched examples of the angustifolius group are not to be surpassed alike for richness of colouring and for beauty of form. But in the case of these and of all other plants which have "form" every portion of each individual should be clearly shown. It should never be forgotten that one perfect plant surpasses any number that are imperfect, and that it is wasteful to crush up good plants for the sake of getting just so many into a group or decorative arrangement. This is one of the clearest principles.

Touching now on "form" as applied to cut flowers, exactly the same remark applies here. If a gardener selects flowers which have colour alone to recommend them he will always, no matter how tasteful his arranging may be, fail in making a striking effect. A few plumes of Pampas Grass, with leaves from the same plants or with a few common Rushes intermixed, will make a most graceful centrepiece. A large vase will be nobly decorated with six or seven Arum spathes and a few Arum leaves. Small glasses will be amply furnished with a few sprays of Lily of the Valley, and a leaf or two of the same. Or what more charming than any of the Narcissus? three or four flowers if set in a wealth of their own leaves making a most beautiful picture; and these are so amenable to forcing that a very great variety can be grown all through the winter and spring. Every one of these examples are noteworthy, because they place "form" far in advance of colour. This is one great reason why Orchids are so vastly ahead of all other flowers for cut decorative purposes. A few Orchids judiciously used have an effect in rooms which no other flowers can compete with. But a great deal can be done with the less attractively formed flowers. A round globular Dahlia or Chrysanthemum can be made to either spoil the effect of a large room or to enhance the effect of the other flowers. Supposing we take a tall vase filled with Pampas Grasses in the way already noted, now select three, five, or more Dahlias or Chrysanthemums (no matter how large the blooms), cutting in either case long stems with foliage, and set these round the outer rim of the vase, letting them stand quite clear, and drooping if they will, and if properly managed we secure a massive arrangement, and quite as beautiful in form as it was previous to the addition of these lumpy flowers.

It may be noted here that vases should receive the finishing touches after they have been set in their places. Sometimes a very slight change in the position of the flowers makes a vast difference on the effect of the whole. When very large masses of flowers are wanted there is almost sure to be a tendency of what is termed heaviness. A good plan is to put in all heavy flowers first, then lighten the arrangement by adding those which have beauty of form, adding any graceful or beautiful foliage at the same time. Here again I have seen the addition of a few flowers, insignificant looking in themselves, be the making of one of these big groups of cut flowers. But, to reiterate what has been already said, "form" is the great thing to study, perhaps more in cut flowers than in any other part of the gardener's work.—B.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 336.)

SHELTER.

WHILST it is necessary to have an open exposure so that the trees may enjoy the full benefit of the morning and evening sun, as well as an inclination of the ground to admit of the sun's rays acting with greater effect, and be the more sheltered from northerly winds, it is rare that the situation is sufficiently sheltered naturally as to not require artificial shelter; but there are many slopes crowned by a wood or copse, and not infrequently these extend round to the north-east and on the opposite point to the north-west, and down the slope to the full east and west quarters respectively in a sort of amphitheatre-like shelter, leaving the points from east to west open to the sun, while the soil being good, as it generally is from the washing down of the richer parts of the higher ground, we have an ideal fruit ground already made. These already formed shelters are infinitely superior to any that can be formed by planting trees for shelter simultaneously with the fruit trees, as the latter

will derive little benefit from the screen trees until they have arrived at or passed the meridian of their profitable period. Nor is this all, for where no natural shelter exists it is a question whether forming artificial shelter will not so detract from the results as to render the affair unprofitable. This is a matter for serious consideration. It is one thing to have a slope of ten, twenty, or more acres with the shelter above indicated, for which there is no rent to pay, and having shelter to provide on ground that is rented equally with that occupied with fruit trees; indeed it is a moot question whether ground not already sheltered should not be rejected, or if sheltered at all, it ought to yield a profitable return for the ground on which rent has to be paid. The landlord might, of course, see that by planting the ground undesired by the fruit grower with forest trees, the fruit growing portion would be rendered more valuable, and bring a higher rental, such as would compensate him for the loss that must accrue on outlay in planting and loss of rent until the plantation came into profit, but unless the land was unsuitable for arable or grazing purposes it is problematical, if he would fall in with such a plan for seeking profit by letting land for fruit growing. Clearly any expense incurred in sheltering would have to be borne by the person for whose benefit it was provided, and to recoup that it must be profitable.

The progress made by vegetation on southern exposures requires protection so as to moderate the effects of cold winds. The points where protection is required are on the north, north-east, and north-west sides, as from these the winds are the coldest, and the north and north-east worst of all, therefore the shelter should approach nearest on those sides, for what is lost in light will be compensated in warmth, and the north-west, though it may be less important, should not be much further removed. On the east and west sides the shelter should be at such distance as not to deprive the site of the morning and evening sun. On the north and north-east the screen should not be nearer than 20 yards, as the sheltering trees to be of use must be larger and stronger than the fruit trees, and the shelter must be brought round similarly on the north-west. On the east side the shelter should be fully double the distance off, as on the north, north-east, and north-west sides, and it is preferable to have the shelter on the east and west in copse or clump order, and widening out to the south-east and south-west respectively, so as to leave the fruit garden or orchard quite open to the south-east, south, and south-west. In planting in clumps it is necessary to have double lines, so that the further off shall be opposite the inner intervals or openings. These will break the force of winds effectually, and letting in more light are decidedly preferable to an unbroken closer screen. In situations much exposed to the south-west it may be desirable to offer protection in the shape of outpost clumps, so as to break the force of wind before it reach the fruit trees; but they must be a considerable distance (not less than 200 yards), or they may interfere with the free access of light, which it is imperative must be afforded unobstructed between east and west. In very exposed locations the outpost system of shelter has great advantage, as with clumps of trees at 200 to 300 yards distance, an outer one at the latter and an inner one at the first, and so that they come alternate and to some extent overlapping, the force of wind is so broken that it falls very much weaker on the inner screen and makes a considerable difference in the temperature. In many, if not most, localities where suitable sites offer for fruit gardens and orchards there is generally a large amount of plantation, natural or other copse, particularly in undulating lands, along with hedgerow timber, which independently of woods that collectively so break and modify the force of winds as to render artificial shelter unnecessary, or it may be necessary to fell some of the existing trees so as to let in more of the forenoon and afternoon sun. This, however, can only be determined by ocular proof on the spot, and requires to be done with consummate judgment and knowledge of the locality.

Tall and quick growing trees should be chosen. None excels in these aspects the Larch, Corsican Pine and Scotch Fir, with the Austrian Pine for the outer and inner lines of the belt, as the Austrian Pine is very dense in growth and does not become so bare at the bottom after a few years as the other. These answer admirably on the north, north-east and north-west, and will thrive at elevations and on ground where quick growing deciduous trees could not. Poplars and Limes are much employed for shelter of this kind, to which there is no objection if the site be in a level country or where there is plenty of moisture with a good depth of soil, but they are not suitable for sheltering on high ground where the soil may be too poor from elevation, although the site to be sheltered may possess a good depth of rich soil through the washing down of the finer and richer parts from the higher ground. The belt should not be less than nine rows deep, the centre one Corsican Pine alternate with Larch, next Larch entirely, then Scotch Fir, every other plant Larch, another entire row of Larch, and an outside one of Austrian Pine alternating with Larch, repeating the

lines on the other side of the line of Corsican Pine. In the lines of Scotch Fir introduce Elm and Sycamore, or Beech if chalky, at every 16 feet, and at similar distance in the lines of Austrian Pine Mountain Ash may be planted, but Holly is preferable on the inner line. This belt would be profitable from the thinnings after a few years, and being planted 4 feet apart the trees would get up quickly, so that by the time the orchard or fruit garden was in full profit it would be materially augmented by the timber, indeed, it is questionable which of the two would upon the capital afford the best results. On low and damp soil Poplars would be most suitable, the Black Italian perhaps best, and for evergreen Norway Spruce might answer if not too much exposed, otherwise it is about one of the worst sheltering trees. For soils of medium texture Limes do very well, but they are useless in heavy clay soils, though they thrive well enough in moist and light, and they may be trained and cut so as to form a close screen from the ground upwards. It is certain that if we need screens of the deciduous character and have to pay rent or own the ground on which they stand, that it would be more rational to plant sheltering belts of the stronger freer growing kinds of Apples or Pears (and Damsons or hardier kinds of Plums for dwarf culture), for it is patent that if the soil is good enough for a Poplar, a Sycamore, or a Lime, which have little value as timber, it will grow equally free examples in fruit trees. Therefore if shelter is provided in such cases it will only need to be of a temporary nature, and the trees should be planted closely so as to grow quickly, for which there is nothing better than Poplars and Willows. Where but a low screen is wanted, as in the case of trees under dwarf culture, nothing surpasses the common Elder, and it will stand sea breezes, evidently relishing the salty air. To enable the screening trees to advance quickly, the ground should be well trenched and liberally manured, keeping it free of weeds so as to let them have full possession of the soil.—G. ABBEY.

(To be continued.)

VARIATION IN PLANTS.

(Continued from page 335.)

NATURAL ADAPTATIONS FAVOURING CROSS-FERTILISATION.

WHAT is commonly understood by the term cross-fertilisation or hybridisation is the transference of the pollen of one plant to the flower of another, and though in garden nomenclature a distinction is made between the two terms, no such distinction can occur in regard to wild plants. The fertilisation of one species by another we term hybridisation; and crossing, cross-breeding, or cross-fertilisation is usually restricted to the same process between varieties of one species. It is more convenient to employ cross-fertilisation in its broadest signification, and there are so many different grades of fertilisation, that it is not desirable to attempt a division of the subject by the use of terms so nearly synonymous.

For example, self-fertilisation pure and simple takes place when a flower is fertilised by pollen from its own anthers; if pollen from another flower on the same stem or plant is employed, we have the first form of cross-fertilisation, and the results may be quite different from those in the first named case.

The next grade is when the flower of a plant is fertilised with pollen from another plant growing in the same soil and situation, and of the same variety or species. The third grade is the fertilisation of a flower with pollen from the same species or variety, but furnished by a plant growing some distance away and under different conditions. Within the limit of one variety we thus have three degrees of cross-fertilisation, and it has been proved repeatedly that the benefit in greater fertility, better seeds, or stronger seedlings, usually increases with the divergence of one parent from the other. Thus there turns are least in the self-fertilised flower. An advantage is gained in the case of fertilisation by pollen from another flower on the same plant; this is increased when the pollen is from another plant, and still more when the plant is grown elsewhere, provided in every case they be equally healthy.

Following the grades already named, we have cross-fertilisation of one variety by another in the same species, then between two species in one genus, and lastly between two species of different genera. These six degrees represent the whole range of the combinations that can be distinguished, though there are other minor differences that have an effect though they may not always be immediately appreciable. For instance, the plants raised from a self-fertilised seed-pod might be regarded as more nearly related than any others, but there would be a slight difference between them and those from other seed pods on the same or different plants, and so on.

It is beyond all question that with many plants cross-fertilisation is a distinct advantage, and the fact that some plants are habitually self-fertilised in a wild state does not in any way dis-

prove this assertion. Nor does the occasional occurrence on plants that are normally adapted for cross-fertilisation, of flowers that specially and solely self-fertilised interfere with it in the slightest; it is only an additional method, perhaps serving some purpose which we cannot perceive. In some of the *Violas* these cleistogamous flowers are found, and it is strange that they are invariably without the brightly coloured corollas that distinguish the ordinary flowers, and they are often unobserved until the seed pods are swelling.

This most extraordinary disappearance of the floral attraction furnished by coloured corollas upon the same plant, where in other flowers they are still being displayed, brings us to a consideration of the most general adaptation to favour cross fertilisation—floral colour. A few years ago if the question had been put to a young amateur or professional horticulturist, "Why have so many flowers brightly coloured corollas?" the answer in nine cases out of ten would probably have been, "For our benefit and pleasure." But this rather selfish and narrow view is only partially true. We do undoubtedly derive much pleasure from those brought into our gardens and our houses, or those wildlings which we see in our country rambles, but it can scarcely be claimed that the millions "born to blush unseen" in tropical forests and unexplored lands afford us any pleasure. Our benefit, great though it be, is a secondary one; the primary purpose has been indisputably proved to be far more intimately connected with the plant itself.

The modern view, supported by the best authorities and by common observation, is that these richly coloured, strangely varied corollas, flaunting on the air, are simply attractions to insect visitors which unconsciously assist in cross-fertilisation by conveying the pollen to other flowers, thus contributing to a more certain production of fertile seeds, and in many cases to an increasing diversity of floral form and colouring. The odours of flowers, pleasant or otherwise, and the nectar, are simply means to the same end—namely, they serve to attract bees with other insects and gain an indirect advantage themselves. It has always seemed very pleasant to imagine that all the fragrant flowers existed alone for our delectation, but rather difficult to account for the fetid flowers. When, however, we understand that there are insects whose tastes evidently differ materially from ours, and which probably derive as much satisfaction from a well developed *Stapelia* or some of the powerful *Arums* as we do from a *Rose*, it is very much better than having to regard such flowers as wasted because we are incapable of enjoying them.

In the forms of flowers countless devices and adaptations are seen, obviously calculated to attract insects, to guide them, or in some way to make them the means of securing cross-fertilisation. This is usually more evident in the case of flowers with monopetalous and irregular corollas than in those with the petals distinct, but there are some exceptions to the rule. Still, if we look amongst the members of that large division of flowering plants, the *Monopetalæ*, which includes some of the most ornamental of our garden plants, we shall find abundant examples of floral forms especially adapted for insect fertilisation. Take, for instance, the *Salvias*, the *Antirrhinums*, or almost any of their numerous relatives, and the structure of the flowers at once suggests adaptation for some particular purpose, and a little observation will soon teach what that purpose is. Whenever flowers possess a remarkable form, a want of correspondence in the parts, an irregularity in any degree, it is worthy of special attention, for in most instances some curious adaptation will be discovered, and some particular insects are the favoured guests.

Often in the families comprising the plants with "two-lipped" corollas as those just mentioned, there are lines and markings which seem to serve as guides to insect visitors, tending in the direction of the stamens or the pistil. It is very strange that even the disposition of the colouring should seem to be in accordance with a method, and to be directed to the accomplishment of a specific object. There are, indeed, "more wonders in heaven and earth than are dreamt of in our philosophy," and the more closely the vegetable kingdom is studied the more we become impressed with this idea. No better restorative to a healthy reason could be advised for the thoughtless, and those who treat in a frivolous manner with things far beyond their comprehension, than a course of study in the plant world.—LEWIS CASTLE.

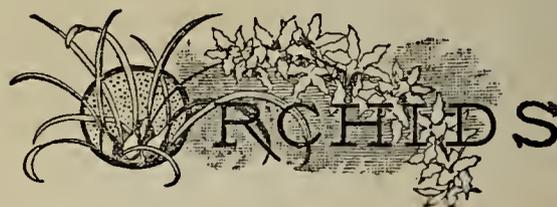
(To be continued.)

TOMATO DISEASE.

THE article on the above which appeared on page 325 by "W. S.," recalls vividly to my mind our battles with *Cladisporium fulvum* during the past three years. The year 1887 was, as all interested in growing fruits will remember, one of very hot sun-

shine. For weeks not a drop of rain fell, and but little dew, even the trees in the open being attacked by red spider. In the Channel Islands *Cladisporium fulvum* made its first appearance during the latter part of May, and from that time onward spread rapidly until I doubt if there was a single Tomato plant unaffected by this most terrible disease by the end of June. Whether in forcing or cool houses, all suffered alike, the latter coming off second best. Having had some eight years' experience at that time in growing Tomatoes for market, I was acquainted with a few remedies and antidotes for the then known diseases, but in common with most others, the fungus which followed the advent of the yellow spots threw all my efforts and experience of mildew quite out of the running. At that time no name had been found for this new form of disease, and, so far as I know, no remedy has yet been discovered that will destroy or check it effectually. As to the remedies I tried they were various. In a small house, a span 60 feet by 25 feet, heated with hot-water pipes on each side in the usual way, the plants were the least affected, and as they were carrying a heavy crop I determined at any cost to either save them or make a vigorous attempt to do so. The first notion was that the plants were suffering from insufficient moisture and nourishment, and consequently root action had been checked. To remedy this, a dressing of a celebrated plant manure was given, the whole of the loam lightly forked over, and a good soaking of clear rain water was applied. The pipes were kept pretty hot all night, and a small amount of ventilation to let out moisture arising from the heavy watering. After a few days I found the disease worse than ever and spreading to the young growths. Flowers of sulphur and air-slaked quicklime were then applied with the sulphur bellows to the under part of leaves. This, instead of checking, really appeared to assist the fungus to spread more rapidly and completely, and at this juncture I must confess I was at my wit's end. However, I decided to let them take their chance, allowing all lateral growths to push on without check, supplying a moderate amount of water to the roots, and constant ventilation. The pipes were heavily coated with sulphur and kept hot, and the glass lightly shaded with a sprinkling of limewash on the west side. The result of this treatment was a partial recovery, and eventually the plants set a late crop, which made up in some measures for the loss in midseason. In 1888, however, this remedy proved utterly useless, and all our plants were completely ruined for the early crop, and the second plants fared but little better. Last year the disease was not so fatal, so that I am in hopes we may soon see the end of it.

With regard to clubbing at the roots, my experience has been that this takes place when plants have been too tenderly nursed in the first instance while in the small pots, and then being planted out in a border, the soil of which has not been warmed by starting the fire two or three days before planting the house. The same will take place if potted in sixes, unless the soil and surroundings are previously warmed. I would advise "W. S." to procure Mr. Wm. Iggulden's last work on "The Tomato," and he will there find the matter he refers to exhaustively treated.—SARNIAN.



PHALÆNOPSES.

LARGE panicles of flowers certainly injure the plants if allowed to remain upon them until the whole fade. Where the well-being of the plants is considered the flowers should be removed before they shrivel. It is a mistake to remove the flowering portion and then allow the spike to branch and flower again. Continuous flowering over some months results in decreased vigour of the plants, but we have found no harm result from moderate sized spikes remaining on the plants until they are past their best.

COOL TREATMENT FOR PHALÆNOPSES.

Those who adopted a cool system of treatment for these plants are struggling to recruit the remains of what were once fine healthy specimens. We have seen good collections rendered worthless by changing the treatment from a warm to a cool system. If *Phalænopses* are reduced to an unhealthy condition it is difficult to restore them again to health and luxuriance. When a place is found where they do well it is unwise to remove them, for they are liable to deteriorate. During the flowering stage too

much attention cannot be paid to keeping the plants free from thrips, which attack them during the strain of flowering.

DENDROBIUM THYRSIFLORUM.

Growths will soon issue from the base in a close moist atmosphere after the plants have flowered. Be careful not to overwater

good peat the lower portion that is decomposed can be picked away and the plants repotted without the slightest decrease in their pseudo-bulbs the first season. It is necessary to break the pots, for the roots often cling firmly to them. Charcoal in fair sized lumps may be freely used amongst the peat. The plants should be fairly elevated, the peat being pressed firm and the pots



FIG. 52.—MR. BRUCE FINDLAY (see page 362).

them or the roots will perish. The supply of water must be gradually increased as the growth extends and new roots are formed. The plants may be kept in a healthy condition for a long time after they are established in fair sized pots by merely removing the surface and supplying good fibry peat. When potting is necessary all decayed matter should be carefully removed, and this may often be done without disturbing the plants to any great extent. When they have had a top-dressing of

not quite filled, so that two or three good top-dressings can be applied annually afterwards. This Orchid succeeds in a basket, but requires more attention in watering during the season of growth. A well grown plant in a basket, when in flower, is very conspicuous suspended from the roof. Where stage room is limited it may be suspended from the roof. We have frequently employed it in 6-inch pots for room decoration while in flower, and find that no harm results, provided the plants are not stood where

cold draughts will strike upon them. While in these positions they should be kept moderately dry at their roots.—ORCHID GROWER.

NOTES ON EARLY ENGLISH HORTICULTURE.

(Continued from page 192.)

IN my last article I referred to the increased cultivation of Asparagus near London during the reign of William III., and in the eighteenth century many acres more about Battersea, Mortlake, and Deptford were occupied by this vegetable; 70 acres near Mortlake alone 'tis said. Gravesend and Reading were other localities where much was produced, the red-tipped variety, brought from Holland, superseding the smaller green-tipped, on account of its superior flavour. Scarcely any is grown at Gravesend now (I cannot speak for Reading), and of course but little in the suburbs of London. A friend is astonished that, considering the difference between our London and the metropolis of Georgian days, there should have been a demand for the vegetable calling for such extensive cultivation; but I expect that some of it was sent from London to distant places. We know for a fact that at one time the market gardens of Middlesex supplied a variety of vegetables to the midlands, and even the north of England, and Asparagus was probably amongst them.

Seakale, so familiar now as the pioneer of Asparagus, was scarcely grown at all in the reign of Anne. It had been for centuries gathered by the residents on some of our coasts, where it is found wild, and by L'Obel and Turner plants from Kent or Essex were sent to the continent, where it was soon brought under cultivation and became popular. Miller seems to have been the first English gardener who formed an idea of its capabilities as a vegetable, but the Rev. John Freeman, vicar of Sidbury between 1707 and 1713, was the first to send samples of Seakale to any metropolitan market, but the price of 2s. 6d. a root was prohibitive. A prejudice existed against this vegetable in the minds of some persons, and one somewhat similar was not in favour of Celery, which had been known as a weed, and then called Smallage. It was with the hope of improving this reputed weed, I suppose, that the early gardeners put the plants in frames to begin with, afterwards removing them when of some size to the open ground.

It is surprising that London and Wise in their "Complete Gardener" take no heed of the Potato, and Bradley in 1719 remarks slightly that he must name it, but it was of less note than most vegetables. These southerners, however, did not probably know that it was then coming largely into cultivation in Lancashire, and at about 1728 a stimulus to its growth in Scotland was given by Thomas Prentice of Kilsyth, Stirlingshire, who having successfully cropped a small plot of ground with Potatoes, and being aware of the value of the vegetable, did not cook them, but distributed the first year's yield amongst the farmers and cottagers of his neighbourhood. He lived till 1792 to see the Potato a common vegetable, though some Scotch folk repudiated it because it was not mentioned in the Bible. It made way but slowly in the West of England for many years.

Bradley's many books, ranging in size from folio to octavo, and dealing chiefly with botany, gardening, and agriculture, had no doubt a considerable influence in diffusing practical information, but he was rather entitled to the credit of being a clever compiler than a man who made valuable original observations. He made some researches into the nature of circulation amongst plants, and the growth of mould in fruit, also he experimented in the production of double flowers and hybrids. He was acquainted with a large circle of gardeners whose practical knowledge he turned to good account, correcting misstatements of previous authors by their aid, and also throwing out suggestions for new methods of culture, particularly in grafting, forcing, and in transplanting saplings or trees so as to form new plantations speedily. His first publication was a book on bulbs or succulent plants, as he called them, the Tulip receiving special notice. A peculiarity of his books was that most of them had abundant illustrations drawn on copper or wood, many of the early books on horticulture being sadly deficient in this respect. His work on "Improvements in Planting and Gardening," published in 1720, contained numerous and curious designs for novelties in parterres and plots, a variety of notes on greenhouse plants; appended to this was a calendar of his own devising. To the Vine he devoted considerable space in another "Treatise on Gardening," which appeared three years later, in which he incidentally mentions that the two finest vineyards near London were Fairchild's at Hoxton, and Warner's at Rotherhithe, so that the vineyard nursery of Hammersmith had not then come into fame. In 1728 he published a small volume entirely devoted to the Vine. It was only a few years before this that the practice of forcing Vines was commenced by the Duke of Rutland at Belvoir Castle, where heat being applied from spring

to autumn a large and early yield of Grapes was obtained. At first they began by giving artificial warmth to Vines on sloped walls, but Switzer advised that this should be done under glass, and much sooner, commencing to force in December at latest.

At the beginning of last century walls were a frequent subject of experiment amongst fruit growers, and as people are apt to go from one extreme to the other, instead of the low walls common fifty or sixty years before, many had walls built of excessive height, say to 18 or 20 feet, disadvantageous for several reasons. Another alteration was that of erecting a wall on arches or piers, so that the roots of the trees might extend beneath; and also they sometimes discarded the coping, which had been general, and this enabled a tree to be trained over a wall. Moreover, it was found that the coping offered at its angle a convenient shelter for insects. In 1700 Facio de Doulier had published his work, recommending that the fruit walls should be inclined to the horizon, and his proposal was taken up by noblemen and other amateurs of the time, though gardeners mostly did not agree with his opinion. Switzer declared that sloped walls harboured damp and made the trees liable to be injured by frosts. Some German gardeners thought they gave the fruit more benefit from the sun, and they particularised the Peach and Nectarine as species that were advantaged by being placed on an incline. Another innovation of this date was the wavy or serpentine wall, one built at a less expenditure of bricks, and said to shelter the trees from the winds. It was originated in Holland, but had brief popularity. There is a sample of this style of wall at a garden near Betsom in Kent, which looks about 150 years old, and another at Ketton Hall, near Stamford. Boarded or wooden walls were also tried, the supports of stone or iron. It was usual to tar the wood very thoroughly. These, too, were put on an incline towards the north, but the practical objections to them were numerous.

Some of the private gardens formed during the reign of Anne were occasionally accessible to visitors, and helped to encourage the pursuit of horticulture. That owned by Dr. Sherard, situated at Eltham, was believed in its day to have the largest collection of exotics anywhere. Knowlton was head gardener, a man of some scientific knowledge. After Dr. Sherard's death in 1737 the establishment gradually declined. North of London the garden of Collinson, near Mill Hill, attracted many, and he in turn was a visitor to most of the nurseries then existing. Nearer to the centre of the metropolis lived Mark Catesby, on the border of Hoxton. He started for America in 1712, learnt how to etch, and drew figures of the most interesting and valuable trees he saw on that continent. Towards the end of his life he moved to Fulham, having long had an attachment to its nursery, and died there in 1749. The Duke of Argyle, contemptuously called a "tree-monger" by Walpole, had a seat near Hounslow called Whitton Place, where he planted extensive shrubberies and raised from seed a variety of exotic plants. About the middle of this century many of his plants and shrubs were removed to Kew.—J. R. S. C.

FERNS AND FERNERIES.

[Prize essay by Mr. E. Booker, Chiswick Gardeners' Mutual Improvement Association.]

CULTIVATION AND MANAGEMENT.

IN selecting the cultivation of Ferns as my subject for this essay, it is not because I have anything of importance to add to what has already been written by exceptionally able and experienced authorities on this class of plants, but they are favourites with all lovers of plants, from the richest to the poorest. They may be grown in a variety of ways—in the stove and greenhouse for decoration, or as specimens for exhibition, in Wardian cases, in the cottage window, and last, but not least, in the open garden, both in sun and shade, the shady place where many good things will not grow being especially well adapted for hardy Ferns. These plants, provided they are given their proper situations, and their several requirements are attended to, are not the most difficult plants we as gardeners have to cultivate. It will be impossible for me in one paper to treat the subject as I should wish, but I will endeavour to give a few practical remarks in what I consider to be important points in their cultivation.

Where Ferns are wanted in large quantities the best plan is to sow the spores in pans or boxes nearly three parts filled with crocks. The compost should consist of good fibrous peat, with crocks and charcoal broken up finely and some coarse silver sand all mixed thoroughly together. Fill the pans or boxes with the compost, pressing it firmly, then water and allow it to thoroughly drain. On this sow the spores, and water carefully with a fine rose. If a large quantity are sown at the same time they will be better placed under a handlight or frame, then they can be more easily attended to in the matter of shading and watering, or else they must be covered with sheets of glass. Place them in a temperature of 50° at night with an increase of temperature by day. March I consider the best month to sow, as then they will have a longer season of growth before them, although they will grow well if sown later.

In about two months or so they will begin to vegetate in the shape

of little green circular bodies on the surface, from which ultimately will spring small fronds. From this time they should be gradually brought to the light, and when large enough to handle they should be pricked off into boxes, using soil similar to that in which they were sown. Keep the soil moist, and shade from bright sunshine. After they are established they may be potted singly into thumb pots or 60's, according to their strength and the amount of roots they have. As they become established repot them as they require it; never let them get pot-bound when young. Most Ferns may be kept comparatively healthy for some time by being confined in small pots, but plants so treated in their early stages are some time before they grow again freely. Another method of raising Ferns, and one requiring less time and labour where the convenience is at hand, is by standing mature plants on a strong wire trellis, under which we can have a bed of ashes; then as the spores ripen Nature will cause them to drop among the ashes, where they will germinate readily in endless numbers. If it is desirable to increase any other variety the fronds when matured must be gathered and shaken on the ashes, where the spores will readily germinate as previously mentioned.

GENERAL TREATMENT IN POTS.—About the middle of February any of the varieties of *Adiantums*, especially *Adiantum cuneatum*, should be cut down entirely, especially if at all shabby, a process I have found not to be at all detrimental, but rather beneficial. All dead or shabby fronds of the other varieties should be cut off, and as soon as they have fairly started into growth, any that require potting should be potted as carefully as possible, so as not to injure the young fronds; and any that are too large, or that you desire to increase, should be carefully cut with a sharp knife into as many pieces as circumstances may demand. Be careful not to use too large pots for small or weak growing varieties; it is far better to give them another shift, or even two, during the growing season, but for the larger plants and strong growing varieties two sizes larger pots may be used with advantage. The pots and crocks should be thoroughly clean. If new pots are used they must be previously soaked, and allowed to dry. The compost should consist of two parts good fibrous peat (broken to pieces by the hand), one part good fibrous loam, a little leaf soil and silver sand, and some powdered charcoal. This should be sifted, and the coarse used to put over the drainage, as perfect drainage is an important matter. The charcoal will keep the soil open and sweet, which is also another important point in the cultivation of Ferns. Water should be applied sparingly until the plants have commenced to root into the new soil, but when fairly established they should, when growing, never know the want of it. In fact any of the large plants which have not been repotted, especially Tree Ferns, will require water twice a day during the summer, for it is marvellous how quickly a Fern will collapse when neglected in the matter of watering. Tree Ferns are benefited by syringing the stems once or even twice a day during the summer, and occasionally overhead; but for all Ferns that are of a soft nature, such as *Adiantum farleyense*, *A. Pacotti*, *A. Legrandi*, and the *Gymnogrammas*, I would not advocate syringing overhead daily; a sufficiently moist atmosphere can be obtained by sprinkling the floors and slabs two or three times daily.

SHADING.—Ferns require to be shaded from brilliant sunshine, and it is desirable to have moveable blinds, so as to use them only when necessary. They are far preferable to a permanent shading, for although Ferns like a certain amount of shade, to grow them in a densely shaded house will do them more harm than good. They will not look so well, nor their fronds keep so well when excessively shaded, for with proper light we secure a firm texture. They are of necessity subjected to a lower temperature during winter, so as to give them that one thing needful—rest, as on the little word "rest" depends our future success. To keep Ferns growing all the year round is a mistake and contrary to Nature. In speaking of rest, I do not advocate the drying off of the Ferns, or placing of them in any out-of-the-way corner, but that they should have a lower temperature, and have the water given them more sparingly, as they will not require it so often during winter.

TEMPERATURE.—Most of the Ferns I shall name in my selection are those from tropical countries requiring a stove temperature during winter of 60° at night to 65° and 70° in the day, rising as the days lengthen to 70° at night, and from 80° to 90° in the day during the summer, again declining as the days shorten.

SELECTION.—In giving a selection of Ferns I shall mention only those I have successfully grown. Of *Adiantums*, *farleyense*, *Bausei*, *concinnum latum*, *delabriforme*, *trapeziforme*, *Williamsi*, *Lathomi*; of *Aspleniums*, *nidus*, *alatum*, *viviparum*, *Cheilanthes elegans*, *Davallia fijiensis*, *Gleichenia dichotoma*; *Gymnogramma peruviana argyrophylla*, *G. decomposita*, *G. schizophylla gloriosa*; *Nephrolepis davallioides*, *N. d. furcans*, *N. Duffi*, *Pteris tricolor*. Some of the varieties I have mentioned will grow in a greenhouse temperature, but I have found them to grow more freely in a stove temperature. *Gymnogrammas* will require to be placed at the warmest end of the house during winter, as they do not thrive in a low temperature, and they must also be carefully attended to in the matter of watering.

INSECTS that infest Ferns are aphides, scale, and thrips. I have found for aphides and thrips nothing better in the way of destruction than occasionally slightly fumigating with tobacco paper. If the Ferns have not been grown in too high a temperature, and not too densely shaded, the fronds will be better able to stand slight fumigation without injury. Scale must be destroyed by lightly sponging with warm water in which a little Fir tree oil has been mixed. I have found this safe and effectual.

THE NATURAL FERNERY.—Having given a brief outline of Fern

culture in pots I will pass on to what I will call the natural fernery, meaning, of course, a house that is (with one or two exceptions) planted with Ferns. For if we have a house with a north or north-western aspect, which could be devoted to a fernery or indoor rockery, a more natural and interesting structure it is difficult to find. The best material to be used in building a fernery of this description is what is called tufa, or Derbyshire stone. Although more expensive than burrs or cork, it is far preferable, looking more natural, and the Ferns luxuriate in it. I have found some of them to root into it so strongly as to make it a difficult task to remove them. It would be impossible for me here to give any ideas or plans of the way the rockwork should be built, but suffice it to say that it should not be made too uniform, but as irregular as possible, here projecting and there receding. The practice of employing a great number of arches and masses of overhanging rockwork should be avoided as far as possible, as it prevents the light reaching the lower parts of the fernery. Ferns so placed as to have all the light excluded from them, instead of growing luxuriantly, and becoming objects of interest, dwindle away and die, leaving bare those parts which ought to be most amply furnished with verdure, because of being below the eye of the spectator. For a fernery of this description to become effective the foliage in the lower part ought to be as luxuriant as that above, and this can only be done when we make arrangements for abundance of light. It will greatly add to the appearance of a fernery if we can have a shallow pond of water within the house, and also if in building the rockwork we let in one or two small pipes with holes pierced in them, so as to penetrate through the stone, greatly assisting to keep the stone cool and moist during the summer.

COMPOST.—The compost should be the same as previously mentioned, but it may with advantage be used a little coarser. Care should be exercised in the planting and making the plants firm, especially at the back. Commence by planting at the bottom, close to the pond, all Ferns of a water-loving nature, such as the *Polypodiums*, *Osmundas*, such as *Osmunda gracilis*, *O. cinnamomea*, and *O. Claytoniana*, *Scolopendrium vulgare*, and its beautiful crested varieties. If any other plants than Ferns are required for the sake of giving relief, there is nothing better than *Aspidistra lurida variegata*, and also that good old plant *Farfugium grande*. Both these are very partial to water, consequently should be planted close to the pond. I shall not attempt to give a long list of Ferns, but shall mention a few varieties that I have found to do well planted out. Nearly all the varieties of *Pteris*, both green and variegated, will do well. Of the green forms *Pteris serrulata*, *P. serrulata cristata*, *P. hastata*, and *P. umbrosa*; while of the coloured varieties are *Pteris argyrea*, a good variety for this purpose; *P. cretica albo-lineata*, *eristata*, and *cristata Mayi*, and *P. tricolor*. The *Davallias* are also exceedingly useful; the best for this purpose are *Davallia bullata*, *D. canariensis*, *D. Tyermani*, *D. hemiptera*, very dwarf and handsome. These should be elevated a little above the level of the pockets, as they will then turn over the sides, and will root into the tufa more easily and readily. In fact, all Ferns having surface rhizomes should be kept above or on the surface, the rhizomes should never be buried. *Nephrolepis exaltata* will be found suitable for planting close to the wall, where it will soon cover the wall and have a pleasing effect. *Nephrolepis davallioides* is another good variety, if we can give it sufficient space so as to show off its long graceful fronds. It certainly should have a place found for it, as I have seen this variety so planted with its fronds nearly 5 feet in length, and hanging gracefully. I might here state that I consider when Ferns are planted out their true and proper characteristics are better produced than when grown in pots. Amongst the *Adiantums* that may be used are *eucatum*, *decorum*, *formosum*, and *Capillus-Veneris*; the last named is very useful for planting out, as the spores will grow readily on the tufa if kept moist, looking very pretty and effective.

Unless the house is a large one I would not advise the planting of Tree Ferns, for unless there is room for them to develop their handsome fronds they soon get spoiled. A few pieces of lichen may, if desirable, be placed here and there on the tufa, with the object of improving the appearance.

When all are planted, water carefully with a fine rose, so as to prevent the soil being washed out of the pockets. When fairly established they must have a liberal supply, and it will be necessary to damp the floors and syringe the walls at least twice a day during hot, bright weather. The Ferns I have selected being of a somewhat harder nature than those recommended for pots, will not be injured by being occasionally syringed, as the tufa must be kept moist, so as to make it become green, for the sooner it does become green the more natural will it look.

The temperature should be kept nearer to a greenhouse standard than that of a stove. In winter a temperature of 45° at night to 50° or 55° in the day will suffice, gradually rising as the days lengthen and the light increases to 60° or 65° at night, and from 75° to 80° in the day during the summer. No harm will be done if the temperature rises even 10° higher than I have stated, if caused by the sun, and if the temperature should rise to this degree, attend well to the damping of the floors. If such a house is glazed with Hartley's patent glass so much the better, as little or no shading will then be required. If shading must of necessity be used, in this case also have removable blinds if possible. I would not advocate the use of coloured glass, as I have found Ferns do not seem to do well when placed under it.

FERNS FOR DECORATION AND CUTTING.—If Ferns are wanted for house decoration during the winter months the best plan is early in the summer to break up or divide any large plants that are at disposal

of the varieties required, or any of the seedlings that can be spared, and grow them on in heated frames, as after they are established the heat may be dispensed with. Give them plenty of light, and admit air night and day on all favourable occasions. Ferns so grown will last much longer when cut, and the plants will stand the dry atmosphere of rooms and the effects of gas much better, giving pleasure and credit to all concerned.

BLOCKS OF CORK, BARK, AND WOOD.—Ferns planted on cork, bark, or pieces of wood are both useful and interesting for hanging in the stove, fernery, or greenhouse. Some of the Davallias may be used for this purpose, and likewise *Stenochlena scandens*, but I do not think anything can surpass the *Platycteriums* for placing on blocks, as they display their peculiar fronds to much greater advantage on blocks than in pots. *Platycterium alaicorne* is the most free-growing variety, while *P. Willincki* and *P. grande* are, perhaps, the most beautiful and interesting. I do not advocate the planting of Ferns on blocks in moss alone, but prefer to use some rough peat; on this place the Ferns, keeping them secure by carefully passing some copper wire behind the sterile fronds. The Ferns will soon root into the peat and grow much better than they would in moss alone. They must be soaked in water when they require it, as it is impossible to water them properly with a can. My objection to the use of moss is that with the continual dipping the moss decays, and likewise the roots of the Ferns.

HANGING BASKETS.—These make beautiful ornaments, and many Ferns do well in them and show their beauty. They should be suspended, or their long, drooping, and graceful fronds are not seen to advantage. The baskets must be lined with moss or sphagnum to prevent the soil from washing out. The compost should be the same as previously mentioned. If possible when planting use those Ferns that are rather root-bound or with plenty of roots, and if planted firmly they will soon commence to grow, and at once become effective. We have numerous varieties of Ferns suitable for this purpose that will grow either in stove or greenhouse. I shall in this case also select those I have found to do well:—*Platycterium alaicorne* (greenhouse), *Adiantum ciliatum* (g), *A. cuneatum grandiceps* (g), *A. assimile* (g), *A. Capillus-Veneris* (g), *Davallia bullata* (g), *D. hemiptera* (g), *Pteris scaberula*, impatient of heat (g), *Asplenium alatum* (stove), *Adiantum dolabriforme* (s), *Davallia Tyermani* (s), *D. pentaphylla*, *Nephrolepis davallioides* (s), *N. davallioides furcans* (s), *N. Duffi* (s), *Gymnogramma schizophylla gloriosa* (s), a handsome Fern.

These will require careful attention in the matter of watering. Never allow them to get thoroughly dry during the growing season, for if so neglected they are often spoiled beyond recovery. The best plan is to take them down when dry and soak them in water, so as to ensure thorough saturation of both the soil and the moss, and allow them to drain before re-hanging, especially if there are any plants of a delicate character placed underneath them.

(To be continued.)



EVENTS OF THE WEEK—The meetings of the week include the following—Royal Society to-day (Thursday) at 4.30 P.M., also the Linnean Society at 8 P.M. The Society of Arts meet on Wednesday, May 7th, at 8 P.M. The usual sales at King Street, Covent Garden, and Cheapside will take place.

— **THE WEATHER IN THE SOUTH** has been generally spring-like, though still rather unsettled. Considerable rain has fallen, and the effects are seen in a rapid growth of outdoor vegetation. Slight frosts have occurred in some districts, but no serious damage to fruit tree flowers seems to have resulted so far. We hear from one grower who has between eighty and ninety acres of Plums, that the prospects of a satisfactory crop are encouraging. On Saturday in the metropolis a remarkable darkness following a very bright early morning lasted until past midday with heavy and continuous rain. Tuesday was very bright.

— **THE WEATHER IN THE NORTH.**—April 21st-23th. The week has been cold throughout; dull and showery for the first few days, brighter and with cold N.E. winds latterly. Some heavy hail showers occurred on the 25th; the hailstones in the north of Perthshire are reported to have been of unusual size. Heavy rain fell on the evening of the same day for several hours. This has done much good: 1½° of frost registered last night.—B.D., *S. Perthshire*.

— **WEATHER AND FLOWERS AT SHEFFIELD.**—Mr. B. Simonite writes laconically:—"The weather is most vile here, cold and dark. The flowers cannot open. Ten minutes' sun in a fortnight."

— We are informed that MR. STUART H. LOW, the principal member of the firm of Messrs. Hugh Low & Co., nurserymen, Upper Clapton, died on April 22nd, aged sixty-three, after a short illness. The deceased gentleman has long been widely known in the horticultural world, and assisted greatly in the development of a large business.

— **THE BRITISH FRUIT GROWERS' ASSOCIATION.**—The Duke of Bedford has contributed £25 to the British Fruit Growers' Association to open a fund for the purpose of preparing and publishing an official report upon the present condition and prospects of fruit culture in Great Britain and Ireland.

— **NOBLE STRAWBERRY.**—This Strawberry is simply not to be surpassed as a forcing variety to ripen now (April 21st). I have a shelf which would be hard to beat for crop and size of fruit, and another year I shall rely principally upon it. Sir J. Paxton put into the same house a month earlier is ripening at the same time a much lighter crop. I have not tried Noble for early work.—H. S. EASTY.

— **THE SPARROW PEST.**—I am made to say under the above (page 327), heading, "Of course it is always necessary to net small birds." It should have been "to net small seeds" as a protection against sparrows and the finch tribe, for the reason that some persons complain of the ravages of birds, and at the same time take no trouble to prevent them, as apart from the damage done to seed beds most of the finches destroy large quantities of caterpillars, as well as innumerable weed seeds, such as Charlock, Thistles, Docks, Dandelion, &c.—R. MAHER, *Yattendon Court*.

— **GRAND YORKSHIRE GALA.**—The thirty-second Exhibition takes place in York, June 18th, 19th, and 20th, when about £600 in prizes are again offered; £42 are devoted to sixteen stove and greenhouse plants, nearly £50 to groups, £48 to Orchids, £100 to Pelargoniums in various classes, £44 to Roses in pots, £55 for cut Roses, £60 for fruits, and many other objects are invited. The York Show is always a grand display, and brings together an enormous number of midland and northern horticulturists.

— **THE EDINBURGH EXHIBITION.**—In connection with the opening of the above Exhibition the Duke and Duchess of Edinburgh left King's Cross on Wednesday morning in the new Royal Saloon for the north. The suite in attendance was Lady Emma Osborne, Colonel the Hon. W. J. Colville, Captain the Hon. D. J. Monson, and Colonel Walker. Sir George Chubb, Chairman of the London Committee of the Edinburgh Exhibition, together with Sir Saul Samuel, Sir John Pender, Mr. Thomas Archer, C.M.G., Mr. E. N. C. Braddon, Professor Forbes, Dr. Robert Hogg of the *Journal of Horticulture*, and other members of the London Committee travelled by the same train.

— **RENOVATING OLD FRUIT TREES.**—In a recent article I advised planting young trees rather than attempt renovating old ones by grafting. My reason for doing so was that many trees on thirty acres of ground were regrafted, but in less than twenty years nearly every tree was dead. The opinion of some was that where the branches had been cut to receive the grafts, the rain entered and caused decay. My opinion is that when a branch is cut the ascending sap is not assimilated, and fermentation takes place, which causes decay. Whether any of us are right or wrong, the trees operated on died, while in a young plantation made later the trees are in a healthy and profitable state, as are some resuscitated by deluging the ground with sewage in winter.—W. T.

— **HORTICULTURAL CLUB.**—A complimentary dinner of welcome was given by the Club on Tuesday evening, 22nd ult., at the rooms, Hotel Windsor, to Messrs. David Thomson of Drunlanrig and Bruce Findlay of Manchester on the occasion of their receiving the Veitch Memorial medal. In the absence of Mr. John Lee the chair was taken by Dr. Hogg, and there were present besides, the Rev. W. Wilks, Messrs. D. Morris, Bunyard, H. J. Veitch, J. H. Veitch, Cheal, Dismoor, Walker, Druery, Hore, Bull, G. Paul, Crowley, A. F. Barron, H. J. Pearson, A. H. Pearson, Turner, &c. Amongst the guests were also Mr. F. W. Burbidge and Mr. S. Barlow. The toast of the evening was proposed by the Chairman, and responded to by Messrs. D. Thomson and B. Findlay. During the evening a selection of vocal and instrumental music was given, under the kind superintendence of Mr. Bunyard. The health of the other visitors was proposed by the Secretary and responded to by Mr. F. W. Burbidge, whom the Secretary claimed as a fellow graduate of the same University. Mr. Morris replied on behalf of the Royal Horticultural Society. Mr. Shirley Hibberd in kindly terms proposed the health of the Chairman, and the meeting

was altogether one of the most successful gatherings the Club has ever held.

— **THE GARDENERS' ORPHAN FUND.**—The Executive Committee of the above Fund met in the Caledonian Hotel on Friday last, April 25th, at 6 P.M., C. H. Sharman, Esq., in the chair. Mr. A. F. Barron stated that he had received a letter from their Chairman, Mr. G. Deal, who was still too unwell to attend, but he was recovering slowly. Much regret was expressed by the members, and the Secretary was instructed to convey to Mr. Deal the sympathy of the Committee, with a hearty wish for his speedy restoration to health. The principal business was to consider the nominations for the eleven vacancies at the next election. After careful examination of the respective cases, the Committee admitted eleven fresh nominations in addition to the six unsuccessful at the last election. The distribution of the voting papers was discussed, the Secretary remarking that many subscriptions were still unpaid, and it was resolved to send notices to all who are in arrears. Mr. Barron was instructed to make the necessary arrangements for the acceptance of the completed Wildsmith Memorial Fund, and the election of the child nominated by the local committee. At 8 P.M. a joint meeting of Covent Garden Market representatives and members of the Orphan Fund Committee was held, to consider the arrangements for the evening fête to be held in the market on May 21st.

— **THE WEATHER AND FRUIT PROSPECTS IN THE NORTH.**—Since the thunderstorm on April 6th the weather has been variable and unsatisfactory. Severe frosts, high winds, accompanied with heavy rain and hail showers, have prevailed. Where the birds have not injured the blossoms the Plums are covered, but the hail on the ground is not cheering, and from the severity of the weather not a bee can reach the blossoms. Apples and Pears have a scarcity of blossom, and some are greatly under the average, but with finer weather an average crop might set, but it is too early to be able to form an opinion. Fine weather is much needed in the orchards of Clydeside.—BLANTYRE.

— **SUCCESSFUL MUSHROOM BEDS.**—At Thames Ditton House, Thames Ditton, the residence of W. F. Hume-Dick, Esq., we lately saw two beds of Mushrooms that are worthy of note. The top bed, 9 feet by 2 feet, was spawned on January 24th; first Mushrooms cut March 8th. Since that time the bed has averaged quite 8 lbs. per week, being at times covered with splendid Mushrooms of a good useful size, and often with from twenty to thirty in a cluster. The under bed was spawned on March 1st; Mushrooms cut April 18th. A grand lot of rather larger size than in the top bed, one example measuring 6 inches across. Temperature kept 58° to 60°. Mr. W. Palmer, the gardener, said he obtained the spawn from Reading, and he has certainly made good use of it.—J. B.

— I HAVE posted to you this evening a rather interesting specimen of the WHITE-FLOWERED NATIVE FRITILLARY. Fasciation is frequent in this genus, notably in *F. imperialis*, but in this particular case there is exhibited in a floral freak a singularly pretty arrangement of the four blossoms and foliage that terminates the stem. Monstrosities are not usually of a pleasing form, but this one may be considered an exception, and has been gathered from a cultivated clump of them, the remainder producing normal flowers.—J. E. JEFFERIES. [If the variety prove constant it will be well worth increasing. There is a fasciated variety of *F. imperialis*, sold by Dutch growers under the name of *Slagzwaard* (Sword-stemmed) said to be quite constant.]

— **STAPHYLEA COLCHICA.**—This plant, so useful for flowering during March and April, succeeds well on its own roots. Cuttings can be taken when the growths are half ripe, inserted in sandy soil and plunged in gentle bottom heat. In two years' time capital little plants will be available if their treatment is liberal during growth, and when in flower they will be useful for filling small vases. Plants which are grafted upon some stock are often much too tall to look well. Those grown from cuttings and "pinched" occasionally, make compact bushes. Much root space is not needed; 7 and 8-inch pots are large enough for good sized plants for several years, provided they are assisted during growth with weak liquid manure. Its freedom from insects is a special mark in the favour of this plant. I have only seen red spider on the leaves caused by allowing the soil to become too dry.—E. M.

— **WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.**—This Society continues to flourish and grow larger. Two meetings have been held during the past month, which were both well attended. On the 9th inst., R. Walters, Esq., in the chair, a

capital paper was submitted to the meeting by Mr. W. Osborne on "Potatoes." The essayist dealt with his subject in a plain and practical manner. It was highly appreciated by the members present. A good collection of Potatoes were staged by Messrs. Fulford and Adams. The usual vote of thanks terminated the meeting. On the 22nd inst. Mr. G. Fulford occupied the chair. There was a very good muster of members and visitors present to hear a paper on "The Greenhouse and its Occupants," by Mr. W. King. A lengthy discussion arose, to which Mr. King replied. A group of *Azalea mollis* and *Spiraea* was staged by Mr. Riding. Some Pansies were also exhibited by Mr. Gull of immense size. The vote of thanks to the essayist, and a similar compliment to the Chairman, ended the meeting.

— **TASMANIAN APPLES.**—Mr. James Webber, Central Avenue Covent Garden, has sent us samples of Ribston Pippin and King of the Pippin Apples. The former are of full size, fresh, firm, and of the first quality, reminding in tenderness and flavour of orchard house grown fruits. The King of the Pippins are of fair size for the variety, very clear, juicy, and sugary. We have to note, however, that this is not the variety usually grown under the name in this country, but is the true old King of the Pippins, or King Apple of Rea, now rarely seen; and it is singular that it should come to us from the antipodes. It is a smaller, earlier, and richer Apple than the Golden Winter Pearmain, which is the correct name of the free and useful variety generally grown as King of the Pippins. This is of continental origin, and was invested with the name which adheres to it, by a nurseryman, long since deceased, for trade purposes. Good Tasmanian Apples such as those referred will be acceptable to many persons at this season of the year.

— **LATHYRUS SIBTHORPI.**—You will be interested in knowing that I have just lighted on a communication written in 1836 by William Baxter, in the "Gardeners' Magazine," relating to *Lathyrus Sibthorpi*. It appears to have been cultivated in the Oxford Botanic Garden prior to 1795, singularly enough under the name of *L. rotundifolius*, yet the plant introduced and cultivated under this name since 1822 is alleged to be its parent. The "Annals of Botany" (König and Sims, vol. ii., page 451) contains an account of it, but I have not yet had an opportunity of referring to it. Bieberstein it is supposed introduced it, presumably during the time of the second Sibthorp, the author of the "Flora Græca." Vexation and sorrow flow with the ink here, for much of the voluminous correspondence of Dr. John Sibthorp was, after his death, disposed of by his "friends" as waste paper. The *Rosa ferox* now in the garden is that of Bieberstein, and is perhaps the only one in this country of the kind, and I think very probably were sent as seeds with the *Fritillaria racemosa* and the *Lathyrus*, from the coast of the Caspian by him to Dr. Jno. Sibthorp, but this is speculation.—JNO. E. JEFFERIES. [The "account" in the "Annals of Botany" is a mere fragmentary allusion, and imparts no fresh information on the subject.]

— "VISITOR'S" note respecting *LACHENALIA PENDULA* being so beautiful when growing in a basket at Childwall Hall Gardens leads me to say that *L. tricolor*, with smaller flowers, also forms a capital basket plant. The three colours in the flower—green, red, and yellow—are exceedingly distinct when a good base of its foliage is provided, which droops in a naturally graceful manner. When baskets of the size named by "Visitor" are used it is not necessary to disturb the bulbs every year if fairly good soil be used at first. They will succeed for the second season's flowering with the assistance of some stimulant when growth is well on the way, especially when the flower spikes are forming. I do not know a better plan to show the blooms of *Lachenalia* than growing the plants in baskets. From the time the foliage turns yellow after flowering is past no water should be given until the following August. If the baskets are hung in a cool shed, say one with a northern aspect, the mass of soil in baskets of the size named will retain sufficient moisture to carry them through the resting period.—H.

— **DOUBLE PRIMROSES.**—These are very useful for producing an early display out of doors either in the beds by themselves or in the front of herbaceous or shrubby borders. In the latter they are perhaps the more useful. They do not require replanting so often as when in beds, and they succeed much better when the roots are left undisturbed for two or three years. When they are employed in the beds along with other spring flowering plants the fault of double Primroses is that they flower too soon. Much depends upon the natural soil of the beds or borders. A cold wet position does not suit them. A warm sandy soil made rich with manure produces robust growth and insures

Freedom of flowering. The earliest variety to flower is the mauve purple *platypetala plena*, which does not grow more than 6 inches high, opens its flowers early in March, and continues to do so for nearly three months. *Lilacina fl.-pl.* produces deep lilac double flowers in great profusion. This is more robust than any other. The old *alba plena* needs no praise to recommend its qualities, which are well known. Where the yellow sort thrives it is a desirable plant to encourage, because there are few flowers of its colour to be had then. The best time to increase the stock is in May, when flowering is over. Every single crown with a root attached will grow if planted in a suitable position. A north border answers well, where they will obtain shade for a time until new roots are formed.—E.

— EFFECTS OF FROSTS UPON BROCCOLI.—It is a curious fact about which I have frequently noted, that the youngest Broccoli plants are usually the least affected by frosts. Last year we prepared an exceptionally strong yet most sturdy lot of plants from which great things were expected. All were given abundance of room, and the ground being firm and fairly rich, extra stout stems resulted, or such as only unusually severe frosts would cripple. Apparently these stems are quite uninjured, but not so the leaves. First very severe hoar frosts much injured the young central leaves, and subsequently the older leaves also gave signs of collapse, very little green being left in them. At the present time the greater portion of the plants look much as if they had been scorched by fire, and rustle in the wind like leaves on trees in the autumn. Not more than a dozen plants were killed, and we shall have hearts from all that survived, but they are or will be less than half their usual size. Not many yards from this quarter a number of plants were put out a month later on ground just previously cleared of Strawberries. These made but poor progress at first, but grew considerably in the autumn. They are not nearly so sturdy as the older plants, being taller when put out, but not one has been killed, and only a very few leaves lost, the majority being quite green and healthy, while the hearts we have already cut have been of a useful if somewhat small size, and of excellent quality. I do not profess to be fully able to explain why the young, and what we might reasonably assume the most tender, Broccoli plants should escape while the apparently most matured plants suffered badly, but merely chronicle the fact that such is really the case.—W. IGGULDEN.

— THE ANCIENT SOCIETY OF YORK FLORISTS recently held its first show of the season at the Guildhall, York, the public being as usual admitted free, a privilege of which a large number of people availed themselves. The arrangements were admirably made by the members of the Committee. Over 500 specimens were staged by some twenty exhibitors. The display of Hyacinths was exceptionally fine. All the blooms were of good quality. There was a fair average collection of varieties of Auriculas, good Tulips (in pots), and excellent specimens of Polyanthus Narcissus. The new rules of the Society for restricting Auriculas and Polyanthus to pots not exceeding 4 inches lent uniformity to the exhibition. In cut flowers the hand bouquets, gentlemen's buttonholes, ladies' spray bouquets and bunches of flowers were much admired. The chief winner in the classes for Auriculas and Polyanthus was Miss Steward, other awards being gained by Dr. Baker, Mr. T. Smith, Mr. G. Cooper, and Mr. G. Hudson. Mr. S. Hardcastle, Mr. J. Nicholson, Mr. B. Pannett, Mr. Fielden, Mr. W. Douglas were also winners in these classes. Dr. Baker took all the first prizes for Tulips and most of the premier honours for Hyacinths, including a prize given by Messrs. Clues Bros., of 23, Market Street, for six Hyacinths dissimilar, Miss Steward and Mr. E. Gray being second and third. Miss Steward, Mr. W. Douglas, Mr. Fielden, and Mr. Leadley took prizes in Hyacinths. Mr. S. Hardcastle, Dr. Baker, Mr. W. Heppell, Miss Barstow, Miss Steward, Mr. B. Pannett, and Mr. J. Nicholson shared honours in the classes for Primulas, Cyclamens, Cinerarias, Spiræa, stove plants, &c. Other awards went to Mr. M. Dyson, Mr. H. E. Wilkinson, Mr. G. Horner, Miss Kirlew, and Mr. W. Heppell. The next show will be held at the Guildhall on May 28th.

— MR. RICHARD DEAN AND THE EALING HORTICULTURAL SOCIETY.—A copy of the *Middlesex County Times* has been sent to us containing the report of a presentation of a gold watch and a purse of gold to Mr. Dean in recognition of his services rendered to the Society during a period of upwards of twenty years. In another column of the above paper he gives a short lecture to the members of the Gardeners' Improvement Society, and makes a suggestion worthy of their consideration. He says:—"The Gardeners' Society professes to be an organisation for mutual improvement; yet but very few of its members contribute information for the benefit of their fellow members; they

prefer to compete for prizes rather than writing and reading papers at their ordinary meetings—doing for gain what I think they should do for the love of knowledge, and a desire to impart it to others. The readers of papers at the weekly meetings are mainly from the outside—gentlemen who put themselves to some expense and trouble to undertake what is asked of them. The best educational test would be, when a paper is read—such a one, for instance, as that by Mr. Hudson, on the culture of Grapes—the members should prepare an abstract of the paper, and send it in on the second day after. This would require close attention to the reader, the practice of note-taking, and the exercise of the useful power of condensation in compiling an abstract, which should set forth the main argument and method of the reader. This would encourage mental concentration, cultivate the memory, impart the faculty of summarising, and lead up to the capacity of writing for the Press—all solid educational advantages of a very high order and value. If the young members could be induced to keep a common-place book, in which to set down under appropriate headings, and arranged for ready reference, such scraps of information as they can gather up at the meetings of the Society, they will have much reason to rejoice in after life. It is by such means as I have indicated that so many gardeners have risen to foremost positions on the horticultural Press."

HONOURS TO HORTICULTURISTS.

SUGGESTIONS have been repeatedly published in this Journal during recent years with regard to the desirability of bestowing a proportion of the medals at the disposal of societies and others upon general horticulturists of note outside the ranks of the exhibitors. The Veitch Memorial Trustees gave some attention to this matter last year, with the result that one of their medals was awarded to Mr. A. F. Barron, who well merited the public recognition of his services. This year the Trustees selected for similar honours two northern representatives of horticulture—namely, Mr. David Thomson of Drumlanrig Gardens, and Mr. Bruce Findlay, Curator of the Manchester Botanic Gardens. As recorded in our last issue, the presentation to these gentlemen was made by Sir Trevor Lawrence, Bart., M.P., at the meeting of the Royal Horticultural Society on April 22nd, and the hearty applause with which the recipients were greeted proved convincingly the general opinion as to the honours being correctly bestowed. The awards have, in fact, given much satisfaction, and the action taken by the Trustees in departing from conventional methods has secured general approval.

MR. BRUCE FINDLAY.

As the occasion is a suitable one, we reproduce a portrait of Mr. Bruce Findlay, published in this Journal nine years ago on the occasion of the great International Horticultural Exhibition in Manchester. It is still, however, a faithful likeness, as the lapse of time has but little altered Mr. Findlay's appearance, and certainly does not seem to have decreased his characteristic energy in the slightest degree. The following is an abstract of what previously appeared in these pages regarding Mr. Findlay and the garden over which he presides.

The original proposal to establish botanical gardens in Manchester appeared in 1822. There were then very few establishments of the kind in England, but there was one at Liverpool, and it was in order to be on a par with the last-named that the proposal for a Manchester garden was issued. But the project was mooted before its time. Nobody cared to take it up, and not until about 1829 was it started anew. A Botanical and Horticultural Society was then established. Dr. Dalton went all round the suburbs of the town testing the comparative cleanliness of the leaves of the trees with a cambric handkerchief, so as to be sure of the purest atmosphere, and this being found at Old Trafford, the existing site was chosen. In 1831 the gardens were ready, and about midsummer that year there was a grand procession and an opening exhibition. With the original Curators we need not here concern ourselves. They were estimable men—Mr. Findlay's immediate predecessor, the late Mr. Campbell, was one of the most genial gardeners that ever lived. Mr. Findlay himself came upon the scene in 1858. He was born at Streatham in Surrey. Some of his earliest experience, we believe, was gained in Rollisson's nurseries at Tooting. When he received the appointment he has now held with so much credit he was only twenty-three years of age. Flower shows, when Mr. Findlay came to Manchester, were for the select few, the connoisseurs in plants, the fashionable and the wealthy. Taking up with his accustomed promptitude the capital idea set forth in the Great International Show at South Kensington in 1866, he determined that

with proper support Manchester, through his personal effort, should be the first to follow suit. In Whitsun week 1867 began, accordingly, those splendid flower festivals we now look forward to as an integral part of the year's enjoyment. Mr. Findlay has been instrumental in promoting public enjoyment in a rational manner to a degree it would

had permitted, to be one of the foremost horticulturists of the day, and one of the best cultivators in Great Britain. Frequent testimony to his skill has appeared in these pages from visitors to the establishments under his charge, but more particularly during the past twenty years, to the princely and beautiful-situated Drumlaurig. It has



FIG. 53.—MR. DAVID THOMSON.

be difficult to over-estimate. That he does his work in the calm and business-like way that best commends a man to his friends is proved by the way in which they constantly and uniformly rally round him.

MR. DAVID THOMSON.

In his brief, pithy speech when returning thanks for the presentation of the medal, Mr. D. Thomson said he could only claim to have been "a successful servant;" but he might also have claimed, if his modesty

evidently been the rule with Mr. Thomson to strive for the best possible results with everything he has undertaken, and his efforts have been rewarded by a very large measure of success.

We can only give a brief review of Mr. Thomson's career as a gardener and author, but it will suffice to show his activity and constant application to work. He was born in 1824 in the Island of Mull, to which place Sir Walter Scott had sent Mr. Thomson's father as land steward in 1816. He was apprenticed at Carstairs House, and soon gave

evidence of his ability, for he was promoted as journeyman some time before the expiration of his apprenticeship. From there he went to Bothwell Castle, under the veteran Mr. Turnbull, where he remained about four years, and then came to Regent's Park under Mr. Marnock, chiefly with the object of seeing horticulture as practised in and around London. He next removed to Wrotham Park, Barnet, then under the management of his brother Mr. William Thomson, and Mr. D. Thomson attributes much of his after success to the experience he gained at Bothwell Castle and Wrotham Park. His first charge was as gardener and general manager to Mr. Drummond, then head of the banking firm at Charing Cross. After two years' service there he left, much to the disappointment of his employer, and took charge of the gardens at Dyrham Park. It was there that such important work was performed in transforming a strong yellow clay into a fertile soil by an elaborate process of burning which has been described in this Journal. After eight years' residence at Dyrham he left, again with great reluctance on the part of his employer, and took charge at Archerfield, near Drem in East Lothian. These gardens he rendered celebrated for flower gardening and fruit culture, Pines and Grapes were admirably produced, and his ten years' work added materially to his fame as a cultivator. Leaving there he entered on his duties as head gardener at Drumlanrig Castle in 1868, under the late Duke of Buccleuch, and there he has performed most valuable services, remodelling the glass, and proving in every department his skill and experience as a gardener.

Mr. D. Thomson has also done good work as a writer and author, his treatises on "The Pine Apple," "Fruit Culture under Glass," and the "Handy Book of the Flower Garden" being standard works in a horticultural library. He also began writing for the Press when twenty years of age, and for twenty-five years he was a constant contributor to "The Scottish Gardener" and "The Gardener," and for some years he edited the latter. For a considerable period he has been a contributor to the *Journal of Horticulture*, and his writings are always appreciated for their practical useful character.

There is little to add except that a public recognition of Mr. Thomson's merits was accorded him a few years since in the award of the Niel prize in the north, and the Veitch Memorial medal may therefore be said to be a corresponding testimonial from his southern friends and admirers.

THE REVISION AND CLASSIFICATION OF THE PICOTEE CLASSES.

BY THE REV. F. D. HORNER AND MR. E. S. DODWELL.

IN my paper on pages 34, 35 of our Annual Report, I have given my reasons for the note appended to the yellow ground section in our last schedule of prizes, and the objections, as they appear to me, lying against the existing system followed in the case of the white ground Picotee. "Colour being the rule of selection, we reject arbitrarily and barbarously, in the case of the Picotee, every hue or combination of hues not distinctly either a red, or purple, or salmon, pink, or rose. And, subdividing the colours into heavy edged and light edged sections, we leave out, and make of no account, the whole of the medium or feather edged varieties;" that is, in the case of the single bloom classes.

It appears to me that this is most unsatisfactory, and to threaten, as it is extended, yet more undesirable results. Fifty years since we had two classes in Picotees for single blooms. We now have six, and I observe, from the copy of the schedule of prizes sent me, our friends of the National Carnation Society extend it to eight, without, however, covering the objection I have referred to as the medium edged class, or including every hue or combination of hues developed in the flower. Resting upon colour it is exclusive, and unless we are to set up classes for every shade, a *reductio ad absurdum*, will ever remain so.

I propose, therefore, in the case of the white ground Picotees, to rest the division upon the breadth of the marginal colour—an easily understood and perfectly feasible arrangement in the case of the curvilinear edged flowers, and dropping all requirement as to colour—to offer prizes in three divisions: (1) broad edged, (2) medium edged, (3) light edged. We may thus do away with the reproach of hard and fast lines of exclusion, sometimes, and in this case justly as it appears to me, laid against us, and adopt a rule which, whilst allowing every hue or combination of hues in the flower to be brought forward, would require the selection, not to depend upon the preference of individuals for particular colours or shades of colour—a subject upon which tastes may legitimately differ—but upon well defined and well understood intrinsic merits. Of course this proposition touches only the curvilinear edged flowers. Longitudinal markings rest upon a very different principle; therefore, in place of the regularity of marking so harmonious in the curve, we have the marvellous variety of Nature for our guide.

I shall be glad to hear from you at an early date, and to be advised of any point you may think germane to the subject.—E. S. DODWELL.

MANY thanks for your leaflet on the "Revision and Redivision of the Picotee Classes in Single Blooms." At present, there is to the

medium edge, no *locus standi*, except among the heavies, where it is practically a weaker vessel—a light heavy, so to say—and, therefore, of short weight. As things are, we cannot give this style of Picotee its fair expression, and so I think the main divisions in single blooms might well and happily be heavy, medium, and light. But I would certainly, by no means whatever, run all the edge colours together. It would, I think, be too much centralisation; and single blooms, classed only by depth of edge, would be unwieldly, perplexing masses, incapable of sufficient gradation and recognition in awards, except by some such inordinate length of class prizes, that all attempts at comprehending the magnitude of the prizes at planetary distances from the first, would be vain. The colours of the edges are great natural divisions, forming very easy bases of distinction on the whole. Some tints, indeed, so verge and merge that two descriptive names are better than one—*c.g.*, "rose or salmon edge"—but this, I think, would be less confusing than mixing up one type of marginal breadth in "compôte" of all the colours that edges come. I think that your resting "division upon the breadth of the marginal colour" would rather give scope for, than put restriction upon, "the preference of individuals for particular shades of colour." In a mixture of all the colours in a class constituted alone by depth of edge, there would simply be the fullest opportunity for a judge to side with his favourite edge colour. Whereas, with each type of colour separate in its own type of depth in edge, there is none but the safe choice of "Hobson" possible, so far as colour goes. If we get a new colour—say, blue (!)—let us have heavy, medium, and light-edged blues if they arise. I do not take you for one to be frightened by the "arf-a-brick" charges of exclusivism heaved at us as florists. Never mind what the outer critics say. What they call exclusive, we term distinctive. I think decided edge colours in Picotees are more satisfying than nameless blends, just as in the Auricula we disfavour the "undecided edge," and in the Tulip the "rosy bybloemen," as being variably between two classes, and weak flowers in either. The Ranunculus, I know, is hardly ever wrong in colours; but she has peculiar class colours in her 'roans' and 'olives,' capable of wide classification. (I don't know, how "roan-edged" Picotee would sound or look!) Far am I behind you in familiarity with varieties of the Picotee—past and present, new and old. But I fancy there are not many that could not be classed under the existing types of colour: and that, if these were given a triple expression by depth of edge, as heavy, medium, and light edged flowers, in purple, red, and rose edges, we could adequately classify the Picotee as we have it. As for myself, I grow only more and more "hard and fast" in many florist ways. I would, and do seek new developments, and none would more warmly appreciate some new type of beauty, "on well understood intrinsic merits." Only I cannot away with un-florist forms of florist flowers, as ranking with and among florist flowers. That is the point. They are right and pretty among themselves; and in "a flower show," as generally understood, they would be a legitimate feature. But in special shows of a special society, for the development of a flower in special lines of its beauty, it seems to me to be idling with our time and space to introduce flowers that are beside the mark, or simply represent the shortcomings in our efforts. In this light they irritate my eyes as would an ill-spelt word, or a piece of execrable grammar! I fear and feel I don't quite "pan" with you and Brother Barlow on this point. Well, never mind me! I will go and be "hard and fast." It may be sterner work, but the opposite would be more melancholy to me, even from the impression I have never forgotten of seeing an old florist so enamoured and lost amid the bewilderment of keeping nearly everything he raised, for the sake of some point of beauty, that he did not know at last when he had a bad one, and saw nothing better in the best flowers at the National Show than he had in many a hundred truly weak sorts. But here is a long yarn—let me wind it up!—F. D. HORNER.

THE SPARROW PEST.

YOU ask on page 300 if anyone can say how to get rid of the sparrows, and one asks if they can be poisoned. In dealing with the matter, it cannot be too strictly borne in mind that it is felony to lay poison, to destroy any wild bird or wild animal outside a covered building. The reason of this law will be apparent when it is remembered that the poison might be eaten by a stray dog, fowl, pigeon, hare, rabbit, &c., and might lead to a family of persons being poisoned.

The main reason sparrows have increased so enormously in the past few years is on account of the "Wild Birds Protection Act," of which the public are annually reminded by a certain Society, on all the walls of the country, and the penalties persons are liable to who take or kill, or attempt to take or kill, or have wild birds in their possession; but they do not say what birds are protected and what are not, therefore let it be remembered that sparrows are not included, and, moreover, any person can take or kill any protected wild bird on land in his own occupation, or instruct anyone else to do so.

Now, whatever may be said in favour of sparrows, they certainly are not insect eating birds; they live entirely on seeds and vegetables. It is against their nature to do otherwise, as may be seen by the shape of their bills. They do some good in eating a quantity of weed seeds, but this is about all, and as a natural result of their feeding they are about the most toothsome article I know of, and this brings me to the "key" for their extermination. In London we find in every part eel pies, lark pies, and pork pies, in fact pies made of everything but sparrows. I believe that if sparrow pies were included there would soon be such a

demand for sparrows the British supply would soon be exhausted. To begin, make some arrangement with a London pic shop to take the sparrows. They might be sent ready dressed, which is a very simple and easy matter. A conspicuous card asking customers to "try sparrow pic" would soon work wonders and cause other shops to demand sparrows. Then when once there is a demand for them, and money to be made in supplying that demand, sparrows will begin to have a bad time of it. It is no use trying to exterminate them single-handed, the stoutest heart would soon faint with "all work and no pay," but when they are worth so much per score and the price pays to catch them, the case is quite different, then there will be no lack of catchers.

To capture sparrows I know of no plan to equal putting up boxes in the trees or gable ends of buildings, with a perch in front of a little round hole. In summer they will nest in these boxes and roost in them in winter. Over these holes trap wires can be arranged, so that birds may enter but not get out again. These wires should be so contrived that they may be fixed securely, so that the birds may go in and out freely until sufficient are using the boxes to make a good haul to fill an order. When nesting leave the old nest, other birds will quickly take to it; in fact no other bird so readily takes to or appropriates another's nest.

Another way to take sparrows is by means of a net stretched on a light square frame, with a lot of "pockets" in the net, *i.e.*—baggy places in the net for the birds to drop in; this is fixed to a light pole, and is taken at night, and "clapped" on a stack side, or the Ivy on the walls of a building, and raked down. The least touch on the Ivy or the stack side causes the birds to bolt out against the net; a little to and fro movement causes them all to lodge in the pockets in which they are caught, when a fresh place is tried. If horizontal bars are run across the frame the net may be drawn up in folds and attached to them, forming very good "pockets." I have caught very many sparrows by means of a riddle fastened to the prongs of a hay fork. This works fairly well on a stack side but is practically useless on Ivy. Netting them at night is the easiest and quickest way to catch them, and if well followed up would soon exterminate them. One winter's day, when the ground was covered with light frozen snow, I tried some wire mouse traps, they cost 1d. each, two similar jaws of semicircular wire sprung together by means of a coiled brass spring, a piece of wire stood up for the bait. I could thus bury the traps in the snow, leaving the bait, a bit of bread crust, just on the top of the snow. I then placed a large crust of bread close to it on purpose to attract sparrows flying over at a distance. I caught about sixty in this way in two hours, not one of which touched the large piece of bread, but every one took a fancy to the piece he could fly away with; the trap broke the necks of every one, and they were dead in an instant. At last a robin came and was caught, then I dropped that mode of catching. If the traps had large jaws, and the sides covered with a light net, I think the birds could all be caught alive, then if a robin or other bird got in it could be liberated. There is one fault about the traps I refer to—namely, if the brass springs get wet they break, rendering the trap worthless.

There are people who will not believe a word against sparrows. One farmer I once spoke to would have it that the flock of some 10,000 sparrows that were picking out the half-ripe grains from the ear were only picking off the insects. He would have it that the "filth" had taken the corn. Another one I know does all he can to protect them. His houses are covered with Ivy, in which they nest in summer and roost in winter; but even these would have little chance if captured sparrows had any value.—J. HEWITT.



ROSES IN 1889.

WHAT a perennial fountain is the Rose! What streams of enjoyment, of gossip, instruction, and—twaddle flow from it, and yet there is always something we like to hear about. Perhaps, as Montesquieu says, we are not a little gratified at the failures of our friends, although we do not allow that we indulge so unaimable a thought, and we only are glad that we are not the only instances of failure, while the peculiar behaviour of some old friend somewhat astonishes us.

I commence with failure, because I had a most conspicuous instance of it in a few, very few, Roses that I grew, or attempted to grow, in pots, so as to give me blooms in the house before those on the walls favoured me with their flowers. I think I almost deserved failure for making the attempt. My house is a small one, in which I grow all manner of things, and consequently was too crowded for the plants. Moreover, as I was obliged to keep up fires at night on account of frost, and did not wish to keep them going during the day, there was too great a difference between the day and night temperature, and, as a consequence, the plants got smothered with mildew, and hardly a bloom came to any good. They were Teas, of course, and therefore my failure was the more conspicuous. That I am right in attributing it to this cause is to me pretty clear, for I this year adopted a different plan. I placed them in my annexe, where there is no heat, where the variations of temperature are not so great. They are free from mildew, and are coming now into bloom. It is in

this place that I have my plant of *Maréchal Niel*, which is still vigorous. I cut last year about 300 blooms from it, not large and high-coloured as a plant allowed to have plenty of space would have, but still pretty and presentable blooms, although somewhat pale in colour.

The Longworth Rambler on the south wall of my house has again asserted its claims to be one of the, if not the, very best of dark climbing Roses that we have. It was profuse in blooming, and kept up its flowering until very late. Of course it does not fulfil the condition of an exhibition Rose, and is no doubt a Hybrid Tea, not so large in its flowers as *Reine Marie Henriette*, better in its foliage, the profusion of its blooms, and the absence of staleness in its colour. I am somewhat quaking for *Rêve d'Or* on the east wall of my house. It was so cut back a few years ago that I despaired of it. It, however, sent out shoots from the bottom, and has gone up a good part of the old place it used to cover so well. For some cause or other, however, it was not happy last year, and I am somewhat anxious about its future. William Allen Richardson on a wall facing about S.S.W. disappointed me; indeed I think that a wall is hardly the best place for it, as it seems to take the colour too much out of it, and it loses that beautiful orange tint which has won for it so much favour. Of other Roses on this wall I may mention that *Lady Castlereagh* promises well as a good grower and a useful Rose, that my plants of *Comtesse de Nadaillac* have nearly reached the top, and that I find both *Emile Dupuy* and *Claire Carnot* useful. The former is one of the Dijon group, and described as a *pa'le fawn*. Well, you may make any description you like of these Dijon Roses provided they have some shade of yellow. I think, however, that *Emile Dupuy* is less inclined to quarter than many of them, and it is this confused centre that takes away from the value of the race. *Claire Carnot* is of a very soft pleasing shade of yellow, with a tint of copper in it. It is a *Noisette Tea*, and valuable as a garden Rose.

I do not like to say much on the behaviour of my Roses for the simple reason that I do not consider my soil a good Rose soil, and because I do not give them fair play from an exhibitor's point of view. I grow them too close, and I keep them too long in the same ground. This arises from necessity, not will. I like to grow a good many so as to be familiar with them, and to give place for new Roses each year. I think Teas do best with me, but it is true, as your correspondent Mr. W. R. Raillem in his delightful notes on Roses says, that many of them do not succeed as dwarfs. Certainly I have seen the finest flowers from dwarf standards, but I always thought that most free growing Teas did as well on dwarfs as in any form; and Mr. Prince amongst nurserymen, Mr. Burnside amongst amateurs, are instances of what may be done with dwarf Teas, from which most of their grand blooms are shown. There are several new Roses in this class which, while invaluable for exhibition, are yet from their colouring most desirable for the garden and for buttonholes or sprays. What can be more lovely than *Ma Capucine* (an old Rose)? and lately we have had *Princess de Sagam* and *Marquis de Vivens*. The former is of a dark shade of crimson, rich and velvety in colour, good in habit and free flowering. All this is admirably set forth in catalogues, but somehow or other the printer has omitted the qualifying clause—not quite full. The latter is also a light Rose, but only suitable for cutting as a bud, for it is very thin. *May Rivers*, when exhibited by the raiser, struck me as a very beautiful flower with a good deal of China blood, and from what I see of its habit it is likely to become a favourite garden Rose at any rate.

I have never known a season when the autumnal bloom was so disappointing. It could not be otherwise with us. We had such a down-pour in October as we have not had for many years, and the Teas which we have always looked to to furnish blooms at that season, only gave us balls of soddened leather instead of flowers. Some few struggled through it all; but they were comparatively few, and these were amongst those flowers which are naturally disposed to come through. Unquestionably the best of all the autumn-blooming Roses I had was *Gloire de Margottin*, somewhat too thin to be an exhibition Rose, and perhaps for this very reason proving so good in autumn. It is most brilliant in colour, evidently showing its parentage *Gloire de Rosamènc*, somewhat straggling in habit, suggesting the idea of a pillar Rose, and flowering at every point like a Tea Rose.

Some of the little Polyantha Roses gave me a good deal of pleasure, and where Rose growers can afford space for anything but exhibition Roses they ought to find a place. The same may be said of the single Roses. *Austrian Yellow*, I have at last got hold of it after many attempts, and what a lovely, although, alas! fleeting, flower it is. Then the glowing richness of the *Austrian Copper* is so unlike anything else in its family that the question freely rises—namely, that it is not a Rose. Very beautiful, too, is *Macrantha*, with its large white petals and golden stamens, and although some decry it because of the dark colour of its stamens, *Paul's Single White* is a fine pillar Rose; while the single Polyantha, where space can be given to it, is a most lovely object. *Berberidifolia Hardi* I have not done much with. I do not think that it can be considered hardy; at least, I have lost it once or twice by endeavouring to consider it so. I have had to take mine up and pot it, and I do not think it looks happy under the process.

I was unable to procure some of the Roses I wanted in time to plant this last autumn. They were consequently laid in, the tops protected from frost until the spring. On carefully taking them up I was surprised to find how little root action there was, for I had been taught to believe that roots were very active during the winter. All I can say is that I saw hardly anything of it in either Teas or Hybrids, and as my

soil is light and friable it was just suited to set them off if so inclined. I therefore began to doubt very much whether there is so much of it as stated.

I was asked by a large grower of Roses for sale whether I had ever tried pruning them in the autumn when planted, as it was his opinion that was the proper time for pruning. It was needless for me to protest, but if we get a severe frost will they not be killed? and so I have tried a few in this way, giving them an equal chance with those treated in the ordinary method. The result of this experiment will be a matter for next year's account if I am spared to give it.

Altogether, then, the season to me was, as in most places, a disappointing one, and the "manners and customs" of my Roses were of neither a settled, nor on the whole, a respectable character.—D., *Deal*.

ROSE SHOW FIXTURES, 1890.

- June 19th.—Ryde.
 „ 24th.—Drill Hall, Westminster (N.R.S.).
 „ 25th.—Richmond (Surrey).
 „ 27th.—Royal Aquarium.
 „ 28th.—Eltham, Reigate.
 July 1st.—Canterbury, Hereford, Sutton.
 „ 2nd.—Brockham, Croydon, Dursley, Hitchin.
 „ 3rd.—Bath, Farningham, Norwich.
 „ 5th.—Crystal Palace (N.R.S.).
 „ 8th.—Gloucester, Ipswich, *Winchester.
 „ 9th.—*Brigatton, Diss, Ealing, Tunbridge Wells.
 „ 10th.—Birkenhead, Workop.
 „ 12th.—New Brighton.
 „ 17th.—Birmingham (N.R.S.), Helensburgh.
 „ 22nd.—Tibshelf.

*In the case of Brighton and Winchester, where the Shows extend over more than one day, the date of the first day's Show only is given.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

DEATH OF DR. GEORGE THURBER.

THE death of Dr. George Thurber ends the career of the most accomplished horticultural writer America has produced. Dr. Thurber was born in Providence, Rhode Island, in 1821, and early became interested in botany in connection with pharmaceutical studies, which he took up in preparation for his business as an apothecary, which he conducted in his native city. His love of plants, however, was strong, and brought him into relations with Dr. John Torrey, of this city, then the leader among American botanists, and a man whose influence was widely felt. It changed entirely Thurber's career, and secured for him in 1850 the position of naturalist, to which were added the duties of quartermaster and commissary, of the United States and Mexican Boundary Survey. He was attached to the headquarter's party under command of Mr. John Russell Bartlett, the principal commissioner for the United States, and was actively engaged during four years in exploring the natural products of the country between the Gulf of Mexico and the Pacific Ocean. These journeys extended to nearly 5000 miles, and carried the party into regions which were at that time entirely unknown, scientifically. Thurber "was indefatigable," to use Mr. Bartlett's words, "in his exertions to make thorough examinations and complete collections of everything belonging to his department." He discovered many new plants within the limits of the United States and in northern Mexico, where the party made several long and exceedingly arduous journeys. The most interesting of his new plants were published by Asa Gray ("Plantæ Novæ Thurberianæ") in 1854, the name of the discoverer being there commemorated in the new Hibiscus-like plant, *Thurberia thespesioides*, which he had found in Sonora in 1851.

Dr. Thurber, the duties of the Commission being completed, returned to this city and accepted a position in the Assay office, from which he resigned on account of political differences with the authorities, and devoted himself to chemical and botanical studies, lecturing on these subjects at the Cooper Union and before the New York College of Pharmacy. In 1859 he was chosen to the Professorship of botany and horticulture in the Agricultural College of Michigan, a position which he held until 1863, when he became editor of the *American Agriculturist*, of this city. This place he filled with singular success for twenty-two years, when he was compelled by failing health to relinquish the active control of the paper, although he continued to contribute to its columns, and give it the benefit of his counsel until within a few months of his death. Dr. Thurber's influence as editor of a widely read popular journal was great. His writing was characterised always by sound common sense based on exact knowledge of many subjects, and they did more in his time to elevate the standing of the agricultural and horticultural press of the country than the writings of any other man. He possessed a charming style and a rare facility for explaining the most complex subjects in clear and simple language. This gift made the "Doctor's Talks," which he contributed during many years to the *American Agriculturist*, and which were intended to instruct young people upon scientific subjects, models of their kind. Of horticultural matters he wrote out of a full knowledge, as his garden at Passaic, New Jersey, an experimental garden in the true sense of the word, was one of the most interesting in this country. In this garden he found the pleasures of his later years, and these pleasures he shared with the public through his "Notes from the Pines."

Dr. Thurber's editorial work was not confined to the columns of the *American Agriculturist*. The publishers of that journal were large

publishers also of books relating to country life, and most of these passed under Dr. Thurber's critical eye, or, in some cases, were entirely rewritten by his hand. He published, in 1859, "American Weeds and Useful Plants," an enlarged and greatly improved edition of Darlington's "Agricultural Botany," which is still the standard work on the subject, and he contributed the articles upon botanical subjects to "Appleton's Cyclopædia." Dr. Thurber's predilections in botany were for what may be called agricultural botany. This led him to make a systematic study of Grasses, and his knowledge of these plants was unequalled for many years in the United States. It was his intention to prepare a monograph of American Grasses, but editorial duties and failing health, undermined by the hardships of the Mexican boundary, compelled him to abandon this undertaking, for which he was otherwise admirably equipped; and of late years he has been able to do little beyond occasional contributions to the Press.

Dr. Thurber was a man of great knowledge and of the broadest sympathies; kind, faithful and true, generous to a fault, simple in the ways of the world, and always more interested in the welfare of others than in advancing his own interests. His death removes an interesting and picturesque figure, and a man who will never be forgotten by his friends.—(*American Garden and Forest*.)

ROYAL AQUARIUM, WESTMINSTER.

APRIL 29TH AND 30TH.

A BRIGHT, varied, and attractive Exhibition was opened at the Royal Aquarium, Westminster, on Tuesday last, as the second of the series for the present year. Auriculas and Primroses constituted the leading features, but the Daffodils, the Clivias, the Pæonies, the Rhododendrons, and the miscellaneous groups were strongly and admirably represented. The Superintendent, Mr. W. Holmes, arranged the exhibits in an effective manner, and all concerned in the management had ample reason to be satisfied with the results of their efforts.

Some of the most experienced florists did not hesitate to say that the show of these plants was equal in merit to that of the National Society held in the previous week; indeed, in some respects there was an obvious improvement, and the Alpine varieties constituted an exhibition in themselves. A class was provided for a collection of Auriculas, in which there were three competitors, the premier award being secured by Mr. James Douglas, gardener to Mrs. Whitbourne, Great Gearies, Ilford, who had about fifty excellent plants, chiefly of the show edged and self varieties. Mr. C. Turner, Slough, was second, Alpines and selfs predominating, all well grown plants. Mr. R. Patterson, Ashburne Gardens, Sunderland, was a close third, his plants being slightly smaller, but good, and the varieties chiefly selfs and edged forms.

The competition was also good in the class for twelve show Auriculas, the first honours being secured by Mr. G. Wheelwright, Oxford Road, Reading, who had the following varieties—Mrs. A. Potts, Col. Taylor, C. J. Perry, Rev. F. D. Horner, Heather Bell, Lancashire Hero, Black Bess, Prince of Greens, Acme, Dr. Kidd, Richard Headly, and George Lighthody. Mr. J. Douglas was a close second. Mr. R. Patterson was third, a plant of Heroine being very notable; and Mr. C. Adams, Swallow, was fourth. Only two collections of six show Auriculas were entered, Mr. Henwood leading with good plants of Mrs. Potts, Dr. Kidd, George Lighthody, Rev. F. D. Horner, Black Bess, and Mrs. Dodwell. The second prize went to Mr. Phillips, Reading, a few points behind the first, but with good flowers. Of the six competitors with four show Auriculas, Messrs. Henwood, Wheelwright, Douglas, and Patterson were successful in taking the prizes in the order named.

Several classes were devoted to single specimen Auriculas, and a much better system of affixing the prize tickets was adopted than at the National Show. For green-edged, Mr. J. Douglas was first, second, and fourth with the Rev. F. D. Horner, and Mr. Henwood was third with the same variety. The best grey-edged was Mr. Henwood's George Lighthody. Mr. Douglas being second and third for the same variety, and Mr. Phillips fourth for Lancashire Hero. In the white-edged class Mr. J. Douglas led with Horner's Elaine, he also took the fourth prize with that variety, Mr. Henwood being second and third with Smiling Beauty and Acme. Black Bess was the leading variety in the self class, and secured Mr. Henwood first and third prizes, Mr. Wheelwright taking the second place with the same, and Mr. Douglas was fourth with Tiresias.

As already remarked the Alpine classes were well filled, and the exhibits of a generally superior character. For instance, there were nine competitors with twelve varieties, and the plants with which Mr. J. Douglas secured the first prize were of quite an exceptional character, vigorous without being coarse, the flowers large, clean, and bright. The varieties were Diadem, Mrs. Blackburn, Ada Hardwidge, Miss Moon, Sensation, Toujours Gai (certificated), Hotspur, Nellie Hibberd (certificated), Love Bird (certificated), and some unnamed seedlings. Mr. C. Turner followed closely for the second place, Mr. Wheelwright was third, and Mr. W. C. Walker fourth. Mr. Henwood had the premier six Alpines—namely, Defiance, Mr. Martin, Homer, Mary Francis, Hotspur, and Lovebird, all excellent plants. Mr. C. Phillips, Reading, Mr. R. Dean, and Mr. A. J. Weston, Balham, were second, third, and fourth respectively. Nine also competed with four Alpines, Messrs. Douglas, Henwood, Wheelwright, and Patterson being the prizewinners. In the single specimen classes the prizewinners were as follows:—Yellow grounds.—First, second, and fourth, Mr. Douglas, with Miss Moon and seedlings. Third, Mr. C. Turner, with Mr. Gibson. White or cream grounds.—First, Mr. Douglas, with Phidias. Second and third, Mr.

Turner, for Mrs. Knight. Fourth, Mr. Adams, for Slough Rival. Messrs. Douglas, Dean, and Cragg were the exhibitors of fancy varieties, and secured the prizes in that order.

The premier Show Auricula was, after a very careful selection on the part of the Judges, decided to be a fine example of Prince of Greens, in the collection shown by Mr. Wheelwright. The premier Alpine was Nellie Hibberd, a new seedling shown by Mr. J. Douglas.

Collections of Primulas came from Messrs. J. Douglas and R. Dean, who were placed first and second respectively, the former having freely flowered plants of *P. obconica*, *P. japonica*, and *P. verticillata*. Fancy Polyanthus from Messrs. Dean, Douglas, and Frettingham, Beeston, Notts, secured the exhibitors named the prizes in that order, Mr. Dean having two new varieties (Charmer and Brightness), for which certificates were awarded. Messrs. Douglas and Dean exhibited twelve hardy Primroses, and gained first and second honours, and two other varieties, Mr. and Mrs. Gladstone, were certificated. Mr. Dean had the best basket of Primroses, very bright and attractive varieties. Messrs. Douglas and Lambert were second and third. Gold-laced Polyanthus were not largely shown, the best specimens coming from Mr. J. Nicholson, Cbingford; Mr. J. Weston, Mr. Dean, and Mr. A. J. Weston following.

Messrs. J. Laing & Sons, Forest Hill, were first with a magnificent group of flowering and fine-foliage plants, comprising Orchids, Tuberos Begonias, Palms, Ferns, &c. They were also first with a group of excellent Clivias in very fine varieties. Mr. W. Morle, Regent Street, and Mr. Nunn, gardener to J. Soames, Esq., Maze Hill, also showed well in the group classes. Mr. T. S. Ware, Tottenham, was first with a large collection of Daffodils, including the best varieties in cultivation and many novelties. Messrs. Barr & Son, King Street, Covent Garden, were second also with a fine collection, but they won premier honours for thirty-six bunches of Daffodils; Mr. C. W. Cowan, Valleyfield, Midlothian, taking first prize for eighteen bunches of Daffodils. *Dielytras* and *Spiræas* from Mr. Lambert were also noteworthy.

Miscellaneous exhibits comprised an admirable group of seedling Alpine and border Auriculas from Messrs. Sutton & Sons, Reading, who also had a group of dwarf compact handsome *Calceolarias*, remarkable for their good flowers and rich varied colours. A collection of well grown Clivias from Messrs. B. S. Williams & Son, Upper Holloway, comprised a number of the fine varieties for which the Victoria and Paradise Nurseries are famed. *Azaleas* and *Amaryllises* were well shown (extra prize). Mr. W. J. Chambers, Isleworth, had a group of the white *Viola Snowflake*, dwarf compact specimens bearing numerous large flowers. *Rhododendrons* from Messrs. Lane & Son, Berkhamstead, and *Tree Pæonies* from Mr. W. Gordon, Twickenham, formed effective groups. First-class certificates were awarded for the following plants:—

Auricula Magpie (Mr. J. Douglas).—One of the varieties raised by the Rev. F. D. Horner, belonging to the Snow section. It is a white edge with black body colour, good solid paste and bright tube.

Auricula Nellie Hibberd (Mr. J. Douglas).—A seedling Alpine, which also secured an award as the premier in that section. It is a handsome variety, crimson maroon shaded, and gold centre. The flower is well formed.

Auricula Toujours gai (Mr. J. Douglas).—An Alpine, with purplish crimson shaded flowers and a cream centre.

Auricula Lovebird (Mr. J. Douglas).—An Alpine variety, deep crimson, purple shaded; a peculiar tint, and very distinct.

Polyanthus Charmer (Mr. R. Dean).—A beautiful variety, with bright crimson flowers and a yellow centre.

Polyanthus Brightness (Mr. R. Dean).—Remarkable for its rich magenta colour and clear gold centre; very fine.

Primrose Mr. Gladstone (Mr. R. Dean).—A capital variety, with deep crimson flowers and gold eye.

Primrose Mrs. Gladstone.—Very delicate creamy white, with yellow centre.

Primula cortusoides lilacina marginata (Mr. T. S. Ware).—Pale mauve and white, flowers very large, free.

Achimenes Rosy Queen (Messrs. Sutton & Sons).—An extremely distinct and handsome variety, with large flowers, the corolla broad, bright clear rose, white in the throat, evidently derived from a cross with some of the large flowered species of the family.

Calceolaria Cloth of Gold (Messrs. Sutton & Sons).—A large flowered pure yellow variety; very compact in habit, free and useful.

Auricula (Fancy) Bridesmaid (Messrs. Sutton & Sons).—An exceedingly delicate and beautiful variety, the flowers of good size and shape, the colour a soft French grey, with a faint rosy suffusion and a creamy centre.

Tuberos Begonia Princess of Wales (Messrs. J. Laing & Sons).—A fine single variety, a bright reddish salmon; extremely free, and capital habit.

Tuberos Begonia Gigantea (Messrs. J. Laing & Sons).—Single, bright rose, very large, the petals broad and round, admirable shape.

Tuberos Begonia Miss E. F. Cooper (Messrs. J. Laing & Sons).—Single, rosy salmon, a clear delicate tint; flowers of excellent shape and substance.

Clivia John Laing (Messrs. Laing & Sons).—A fine variety with deep orange red well-formed flowers in a dense umbel.

Clivia Bronze Queen (Messrs. Laing & Sons).—This appears to be somewhat more of a salmon than a bronze tint; it is very attractive in all its points.

Clivia Surprise (Messrs. B. S. Williams & Son).—An excellent variety, with large well formed flowers in a compact umbel, bright orange with a lighter centre.

Trec Pæony Lady Lotty (Mr. W. Gordon).—Flowers large, semi-double, white with deep crimson blotches at the base.

Viola Snowflake (Mr. W. J. Chambers).—Flowers large, pure white; very free, dwarf, compact, and well adapted for beds or culture in pots.

Narcissus Burbidgei Falstaff, white, with small yellow corona; *Johnstoni Queen of Spain*, a pure yellow variety, very handsome; *incomparabilis Queen Sophia*, white, with a large undulated rich gold corona (figured in this Journal last week); and *Dorothy Wemyss*. All these were shown by Messrs. Barr & Son.

Wallflower Bedford Yellow (Mr. R. Dean).—Remarkable for its extremely dwarf habit, dark green foliage, and bright gold coloured flowers.

THE NEW MODEL LAWN MOWER.

THIS season's improvements in this easily worked lawn mower, by the Chadborn & Coldwell Manufacturing Company, are represented in the accompanying figures, and described as follows:—

"The journals of the 'Excelsior' and 'New Model' lawn mowers,

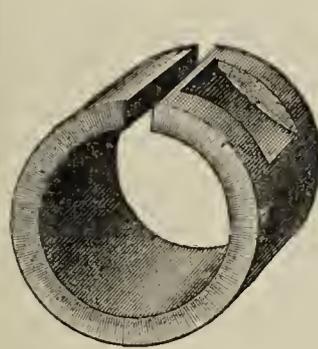


FIG. 54.

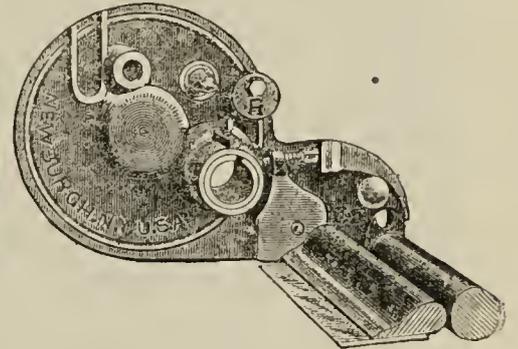


FIG. 55.

above 10 inches, are now furnished with the patent adjustable split bushing (fig. 54). This bushing is so arranged that all the wear of the cutter journals can be instantly taken up by the operator without taking it to the machine shop, which was generally necessary with the old-fashioned box bearings. The importance of these adjustable bushes is obvious when we consider that a lawn mower is simply a revolving shear, and in cutting with a pair of shears it is of the utmost importance that the shear blades be held closely together. The adjustable bushing is a simple mechanical device, which really compensates for the wear in the cutter journals, and thus holds the knives close to each other, and effectually prevents the grass from wedging in between them. This arrangement not only causes the mower to run much lighter, but also keeps the knives in better order, and saves one-half the trouble and expense in repairs. The 'New Model' and the 'Excelsior' are the only lawn mowers made in which these bushings are furnished.

"The section (fig. 55) shows the bushing in position, also the new handle clamp R, by which the handle can be set tight or loose as required. It also shows the patent adjusting screw, which adjusts the knives to each other. This is done by one screw on either side, and is much simpler than the old methods, whereby four screws are needed to insure steadiness. The patent positive pawl used in the 'New Model' mower is made of steel, has no spring, is noiseless in its operation, and is pronounced by competent engineers to be an excellent specimen of American mechanical skill."

The ease of movement of these machines is shown in the photograph (fig. 56) of a son of the London agent, Mr. T. Clarke, and the youngster, who is under ten years of age, appears to be doing his work well, and with the least possible exertion.



FIG. 56.—MASTER C. CLARKE.

ROYAL HORTICULTURAL SOCIETY.

SCIENTIFIC COMMITTEE.—Present: Dr. M. T. Masters, in the chair; Mr. Morris, Rev. C. W. Dod, Mr. Godman, Mr. Michael, Dr. Müller, Mr. Pascoe, Dr. Scott, Mr. Wilson, and Rev. G. Henslow (Hon. Sec.).

Hybrid Narcissi.—Rev. G. H. Engleheart exhibited a collection of hybrids, amongst which was one called George Engleheart, a cross between *N. poeticus ornatus* and *Narcissus tazetta*, Bazelman major. This was quite new, and received a botanical certificate. Another was between *N. poeticus* and a trumpet Daffodil, Hudibras; this had a remarkably large and flat crown. A third, between *P. poeticus ornatus* and Mary Anderson, had an orange streaked cup, both parents having an orange-bordered cup; the colour had become intensified. Mr. Engleheart observed that the anthers, being situated half-way between the points of the insertion of those of the two parents, was a characteristic feature of hybrids amongst *Narcissi*, and that no appreciable difference occurs on the hybrids raised when the parentage is reversed. He also remarked that Dean Herbert thought that *N. tazetta* var. Bazelman major was barren with its pollen, as he could raise no plants from it. This was probably due to a too chilly climate. Mr. Henslow remarked that *N. tazetta* is very abundant amongst the rocks in Malta, and has two forms, one with a short stout stem and many flowers, another with a long stem and fewer flowers.

Aristolochia Goldieana.—Mr. Morris commented upon the singular flower of this plant, which had blossomed at Kew. There had been a race between the flower-bud and the shoot-bud. The former was small, and proceeded out of the old wood. The flower-bud finally prevailed, and the shoot was thereby checked. It is an African species, differing from the South American in having ten stamens, &c. It is figured and described in the "Botanical Magazine," No. 5672.

Primrose, Variety.—Mr. Wilson exhibited a seedling from "Scott Wilson," of a deep blue-purple, with a red eye.

Plant Diseases.—Rev. C. Wolley Dod gave an interesting account of several diseases of plants in his garden, and commented on the difficulty of finding curative means, or of hearing of other suggestions than burning. He first alluded to a species of smut (*Ustilago*) on *Primula farinosa*, which appeared to be indigenous, as the plants were collected in Lancashire; and although it was grown with *P. denticulata*, the smut was confined to the former species. *Æcidium Ficaræ* had attacked his *Hellebores*. In this case a dryer soil was suggested as likely to prove effective in ridding the plants of the fungus. The "Lily spot," due to *Polyactis cana*, usually appearing late in summer, had been seen in April upon Tulips, and apparently the same species on Daffodils. It was suggested that a mixture of sulphate of copper and quicklime would prove effective, as in the case of Vines described below. *Puccinia Schrateri* had occurred on Daffodils from Portugal, and also upon the common double sorts.

Diseased Vines, treatment of, in France, with "Bouillie Bordelaise". Mr. Dod read the following communication:—"In the Médoc there are three applications of the treatment. (1) The first is towards the end of May, when the Vine has produced shoots about 30 centimetres long. At this period the flower of the Vine is not yet opened. (2) A second application is made at the end of June or the beginning of July. (3) A third, about the first half of August. The first application requires about 2 hectolitres of Bouillie per hectare; the other two, 2½ to 3 hectolitres per hectare. With regard to the preparation of the Bouillie, the following is the method employed:—For a 100 kilos. In one tub is put 50 kilos. of water and 3 kilos. of sulphate of copper; in another tub 50 kilos. of water and 2 of lime. The sulphate of copper having been dissolved and the lime well soaked the two liquids are then mixed. Cold water is used and slaked lime. Formerly small brooms made of Heather or Butcher's Broom were used to sprinkle the liquid on the Vines. Several varieties of syringe are now used. It was at first hoped that the Bouillie would destroy both the mildew and the *Oidium*. Up to the present time such has not been the case, and if the mildew is absolutely destroyed by this treatment the use of sublimed sulphur has to be continued against the *Oidium*."

Sulphate of Iron as a Remedy against the Potato Disease.—Rev. G. Henslow quoted the following passage from a report by the late Professor G. Gulia of Malta upon the Orange disease, but bearing on the question of the destruction of vegetable parasites:—"Having watered two Azaleas, three Begonias, an Orange, and several Rose bushes with a solution of sulphate of iron, in the proportion of six grains to one litre, these plants, far from sustaining any injury, seemed to gain intensity of colour to their chlorophyll, and their buds shot with greater rapidity and luxuriance. Towards the end of the past year Potatoes were attacked by *Phytophthora infestans* to such an extent as to impoverish and destroy the crop of the greater number of fields, especially in the eastern districts of the island. In a small field adjacent to others infected by the fungus the ground was sprinkled with the solution prior to the sowing of the Potatoes; some young plants sprang up, and the crop was so abundant as to astonish the cultivators of the neighbouring fields, who were seized with a longing to adopt the method in question. Not a single leaf of these plants bore the fatal fungus. This was certainly due to the sulphate of iron which had destroyed the spores buried in the soil, and rendered the plants so vigorous as to impede the growth of the pernicious fungus."

Colours of Flowers, Experiments on.—The following communication was received from Mr. Smeë: "Some years ago, when experimenting with flowers and plants placed in a weak solution of silicate of soda, I noticed that the plants and flowers were affected by the solution according to their colour. The colours disappear in the following

order:—blue, lilac, red and brown, whilst yellow was the most persistent. Greens behaved according as blue or yellow predominated in its composition. The question has occurred to me whether the white varieties of flowers are not formed among plants in a similar order. We have an example in the blanching of the old flowers of *Francesia*. Then again in the poor varieties of *Vanda cœrulea*, the petals are almost white with very pale blue veining. In *Cattleya*, the colour of the petals and lip disappear, leaving the yellow throat and the pale pink tint (which so often spoils a white *Cattleya* from a florist's point of view), as the remains of the red tint in the mauve colour. Therefore, as yellow is so persistent, we cannot expect a *C. citrina* to appear amongst our white varieties. The white 'crispum' is due to the disappearance of the brown blotches, leaving only the yellow markings on the column; and in the case of the yellow 'triumphans,' which is a poor form of the ordinary type, the brown blotches are either absent or are in process of disappearance. The only pure white forms of Orchids are *C. cristata alba* and *D. Kingianum album*, sec. Hæathi."

Primrose with Foliaceous Corolla.—Mr. Douglas sent a plant with the corolla foliaceous; the calyx was normal. It is a not uncommon form.



FRUIT FORCING.

PEACHES AND NECTARINES.—*Earliest Forced House*.—Alexander stands at the head of the very early Peaches, and ripens from the middle of April in a house to which fire heat is applied at the commencement of December. It is large and rich in colour, and the quality good. Waterloo ripens about the same time, is large and of good colour, but unfortunately a clingstone. Those are succeeded by Early Beatrice, which although a well coloured and good flavoured fruit, is rather small. Early Louise and Early Rivers are fine fruits, though pale in colour, and are particularly rich in flavour. Unfortunately they are liable to crack at the stone, which is to some extent lessened by fertilising the flowers with pollen from the small flowered varieties. Hale's Early, Early York (Rivers' variety), and Grosse Mignonne will form the connecting link between the very early varieties and such standard varieties as Royal George, Stirling Castle, a very fine form of Royal George, and Grosse Mignonne, which are several weeks later in ripening, there being six weeks between Alexander and Royal George. Hunt's Tawny and Lord Napier Nectarines form a good prelude to Elruge and Violette Hâtive, and a good succession may be secured in one house, the only change in the treatment being in not syringing such as have commenced ripening. Trees on which the fruit is ripening must have the foliage and fruit kept dry, or it will act injuriously upon the growth, and affect the maturity of the wood for future bearing. As the fruits of the other varieties will not be ripe for some time yet, the atmosphere must be kept moist by frequently sprinkling during the day, syringing the trees in the morning, and again when closing the house. The night temperature will be perfectly safe at 65° to 70°, but 5° less, though it will retard the ripening, will not tax the energies of the trees so much as the higher temperatures. Leaving the ventilators slightly open constantly at the upper part of the house will be an advantage. In the daytime 70° to 75° by artificial means, and 10° to 15° more with sun heat, will be suitable temperatures.

Trees Stoning.—Do not hurry trees undergoing this process, 60° to 65° at night is ample, and 70° to 75° by day, avoiding high night temperatures and sudden fluctuations by carefully attending to ventilation. A little ventilation left on at night will prevent the deposition of moisture on the foliage to any serious extent, increasing the ventilation when the sun shines upon the house in the morning, yet without lowering the temperature. Avoid fumigation if possible, it dries the foliage as well as the atmosphere, not infrequently crippling the leaves, when the fruit may from the check be seriously imperilled and fall. Early closing is an advantage, but it must not be done to the extent of undue excitement, nor continued until late, the temperature being allowed to fall with the declining sun. It is also advisable to allow a little extra latitude to the growth, but on no account allow foliage to be developed that must afterwards be removed in quantity.

Trees Swelling their Fruits.—There are two distinct periods during which the fruits swell most freely—viz., after setting until the commencement of the stoning process, and after stoning. The first is materially accelerated by a genial condition of the atmosphere, and the means employed to secure a good root action, which is best effected by a judicious and gradual regulation of the growth by the process of disbudding and in thinning the fruits. Overcrowding is a great evil, but large reductions of growth at one time as well as of fruit are not good. The more vigorous the tree the greater is the danger of the fruit being cast in stoning, and the evil is afterwards accelerated by severe disbudding. In the last swelling after stoning the shoots should be well tied down, so that the fruit may have the benefit of all the light possible, but a moderate extension of growth will materially assist the fruit in swelling, care being taken that the principal foliage and fruit be not interfered with. Supply water thoroughly to inside borders when necessary, and weakly trees should receive liquid manure.

CHERRY HOUSE.—When the stoning is completed the fruit will commence colouring. The temperature must not exceed 65° by artificial means, and 50° to 60° at night, with a little ventilation, increasing it at 70°, and not allowing the heat to rise above 75° without full ventilation, closing at 70°, subject to the leaving of a little air on constantly at the top of the house. From the commencement of the colouring of the fruit until the trees are cleared of the fruit the syringing must cease or the fruit will crack, but a good moisture should be maintained in the house by keeping the surface of the horder moist, or if the trees are in pots damping the floors two or three times a day, avoiding, however, a stagnant atmosphere. Aphides must be kept under by fumigation; their presence for any length of time disfigures the fruit. See that the borders do not want water, and liquid manure should be liberally supplied to trees in pots.

FIGS.—*Earliest Forced Trees in Pots.*—The fruit will now be ripe or nearly so, hence the supply of water at the roots must be diminished, syringing being discontinued and a free circulation of warm dry air afforded, leaving the top ventilators open a little at night. Although less water is advised during the ripening of the fruit the soil must be kept moist, and a moderate moisture in the atmosphere secured by an occasional damping of available surfaces, but this will only be necessary in very bright weather. As soon as the first crop is gathered syringe the trees twice daily, renewing the top dressing, and watering at the roots with weak liquid manure. If the second crop of fruit be very abundant they must be thinned out so as not to overtax the trees for early forcing next season. It is only the very early varieties to which the syringing and thinning apply at present.

Early-forced Planted-out Trees.—The fruit will be in the last stages of swelling and will soon commence ripening. The horder must be examined, and if necessary given a thorough supply of water or liquid manure. Cease syringing the trees when the fruit commences ripening, avoiding a superabundance of moisture about the house, having a little ventilation at the top of the sashes constantly and a free circulation until the fruit is all gathered. Do not gather the fruit until it is thoroughly ripe unless it has to be packed.

Succession Houses.—Frequent attention must be given to stopping the shoots at the fifth joint, and subsequently to one or two, but too many side shoots must not be encouraged, as the fruit and wood require light and air for maturation. Train extensions in their full length, thinning or removing strong growths so as to admit light and air to the fruit. Attend daily to syringing the trees, and supply water as necessary to maintain thorough moisture at the roots. Renew the mulching if necessary, and keep it moist so as to encourage the roots to and keep them near the surface.

KITCHEN GARDEN.

TOMATOES.—Cut the fruit off the early plants as soon as it indicates ripening, and let it mature on the shelf in the house. This will allow the later fruits to swell and ripen much sooner than if they were all left on until they were quite ripe, and the earlier the fruit can be secured now the better, especially for market purposes when the prices are high. Plants that are bearing heavily should have a thin surface dressing of soil and manure placed over the roots. They should also receive copious supplies of liquid manure, but do not overfeed any plants that have not commenced bearing. Restrict the plants to one or two main stems. They require attention in this way twice weekly when in active growth. The fruit does not form freely in a damp atmosphere. It is a great advantage to have very forward plants for the open air, and as they cannot be planted until the end of May backward plants should still be kept in a warm genial atmosphere. They should be in 6-inch pots, and if moved into a cool place by the middle of May, and planted out in a fortnight or three weeks afterwards, success may be expected.

ASPARAGUS.—Prevent the surface of the beds becoming a mass of weeds by hoeing or salting. Do not cut from roots that are under three years old. The very small heads that are not sufficiently strong for use may be allowed to grow, but all that can be used should be cut when from 6 inches to 10 inches in length. This may be done until the latter end of May. The heads may be cut level with the ground or a little below it, and care must be taken that those which are still invisible are not injured before they come above ground, as they sometimes are by the feet or knives of careless workmen. Seed may be sown now to produce new roots.

PEAS.—Those who grow their Peas without stakes will find them fail to yield so freely as those that have supports, and, if possible, they should all be staked. Where the ordinary wood stakes cannot be procured, wire netting 4 or 5 feet high, and with meshes 4 inches wide, may be used. If this is put up on each side of the row, and fixed to a stake here and there, it will be found to form an admirable support for the Peas. More seed of the main crop varieties should now be sown. These will furnish gatherings about the end of July, a time when the first flush of the supply is getting over, and when pods are often scarce and inferior. Many persons find well manured Celery-like trenches good for the production of succulent Peas during times of very hot dry weather.

SLUGS AND SNAILS.—As there are now many tender young seedling vegetables in the garden the above pests are very active and destructive, especially after rain and in humid weather. A sprinkling of fine fresh lime if thrown over the surface after dark when the slugs are feeding as often as necessary will be found effectual, and benefit the ground at the same time.

SALSIFY AND SCORZONERA.—These are generally sown and grown together, but the former is the more useful. They are apt to "bolt"

before gaining maturity if sown too early in the season, but this is not likely to occur by sowing at the present time. Break the soil up well, do not put any long littery manure into it, see that it is over 1 foot in depth, sow the seed thinly in drills 15 inches apart and 2 inches deep.

STERILE SEEDS.—There are more of these than we anticipated after such a good season as was experienced in 1889. Some of the Onions are particularly bad. A few sorts have proved a failure, while others from the same seed firm are as good as usual. When it is ascertained beyond all doubt that some kinds have failed the sooner new and good seed is obtained and sown the better, as the loss of a few weeks in sowing Onions will affect the weight of the crop materially. This also applies to Carrots, Parsnips, and all roots and hulbs requiring a long season to gain maturity.

LARGE LEEKS.—Those large Leeks seen at shows and elsewhere in the autumn are not the result of sowing seed in the usual way in the open, but the plants are raised and grown for a time under glass. They are hardened like tender bedding plants, and planted out in the open early in May. Many of them are now ready for planting in trenches similar to those required by Celery.

LARGE SPRING ONIONS.—The large spring Onions, many of which were shown in the autumn of 1889 of unusual size, are raised in the same way and planted out about the same time as the Leeks, but on level ground made very rich near the surface, and in the sunniest of positions.

MISCELLANEOUS.—Withdraw Vegetable Marrow and Ridge Cucumber plants from heat, and harden them to make them fit for planting in the open air shortly. Sow Radish seed in small quantity once a fortnight, and only raise Lettuce in small hatches. Earth up early Potatoes, and sow more Round Spinach seed.



NOTES ON BEES.

THE APIARY.

If the bees had a splendid beginning from the 1st to the 6th April it has been the opposite since. For nearly three weeks the gathering of honey and pollen has been almost entirely stopped, while the Plum and Gooseberry blossoms are nearly past. The latter do not look as if they will hold well, many being yellowed. Many bees have been lost, and weak hives have suffered more in this respect than strong ones, and hives where feeding has been delayed are now in a critical state.

The Sycamores are the succeeding honey yielders, and should the weather prevent the bees getting them there will be no alternative but to feed until the Clover and fine weather come; and if a honey harvest is expected it is imperative that they be fed, and that liberally. It is not the first time that bees have had to be fed the whole summer to tide them over another winter, so we need not despair nor neglect to perform all the work necessary to profitable bee keeping. The season is young yet, and although the first chance of honey gathering has been lost most hives are in excellent condition to secure honey in the second gathering should the weather permit. This will put them in the best of order for the Clover, only they must not be allowed to suffer from insufficient feeding.

YOUNG QUEENS.

These are the first and principal essentials to secure whatever the season may be, whether it be for the present or next year's work. When these are raised and fertilised early in the season it is a double advantage in more ways than one over those raised late in the season.

MAY SWARMS.

If the weather is favourable swarms in May will be the rule this year. In districts where the honey gathering ends with the middle of June, with no prospect of Lime or Heather honey, means should be taken to prevent swarming as much as possible; but when they do swarm in spite of all precautions join two together.

Where Heather abounds the opposite course may be pursued, and Nature may be allowed to take its course with advantage to the bee-keeper. Those who practise the above will in some years, from the extra material or hives in hand, find it greatly to his advantage to reduce his number by joining two or more together, taking the honeycombs that can be spared and joining the brood ones. By so building the hives are in the best possible condition for the Heather harvest, and with a young and fertile queen in a large hive the chances of swarming are reduced to a minimum and the profit raised to the maximum.

Details in many cases might be advisable, but the foregoing outline will enable any practical bee-keeper to understand what to do and how it should be done, and the pages are open for answering novices any query they may put, so as to enable them to perform the necessary work as well as the more advanced. Some of the more important manipulations will be described in future

issues. The most important point at present is not to allow bees to suffer by want of food.

THE USE OF FOUNDATION.

The proper and profitable use of foundation is to use the right sort, genuine native wax, having the natural worker cell with thin septum and high side walls, so that six sheets when laid flat upon each other measure an inch. This used in full sheets in the brood-nest is taken advantage of by queen and bees alike, and I have repeatedly seen eggs laid half an hour after the bees were hived, and in twenty-four hours after hiving all more or less drawn out without the slightest buckling or breakdown. It is the high side walls that give the proper strength, and insure straightness, and the thin midrib or septum, and firm native wax along with allowing the bees ample room to start with, that prevents breakdowns and twisting. A heavy midrib of soft wax has the opposite effect of strength.

Supers demand guides, and it is simply a question of quality how much should be employed. Foundation for sections should have the same kind of cell as that for brood, but should be as thin as possible with a medium side wall. Wax employed by the bees to build and seal honeycombs is slightly of a different nature than that employed in the body of the hive possessing a portion of more brittle and heavier substance than is to be found in wax extracted from brood combs. If the former could be preserved and wrought into foundation it would be more pleasant to eat honeycomb made from it than from wax of brood combs. But it cannot, it is far too brittle, and being heavier than the tougher portion their affinity appears to be gone when melted.

COVERING FOR HIVES.

"Will you kindly permit me, through your columns, to ask your correspondent, 'Lanarkshire Bee-keeper,' by what means the sacking or felt is attached to the Lanarkshire hive, and whether more than one thickness is required? What length and width should the alighting board and porch be for the above hive? Ought four 5-lb. supers to occupy the full length and width of the divisions? I shall be much obliged for the above desired information.—J. D. L., *Northumberland*."

For covering the body of my hives when no outside case is employed I wrap the sacking or woollen cloths so as to cover to the top of the body of the hive, the supers for obvious reasons having an independent covering, which laps over the body one. When the wrappings are made tight a patent pin at the bottom holds it firmly until the operator passes a card tightly round near the top. One, two, or three thicknesses or plies may be employed, depending much upon the thickness and quality of material at hand. The felt should be used the whole breadth (32 inches), and long enough to lap some inches over the wrapping, and is held close at the bottom by a brass nail with a head and nut passing through the felt an inch or so from the edge. The felt should overlap the floor at the back and the two sides, but clear of the doorway at the front.

A cord at the top, or another B bolt keeps it together. It is liable to drop; to prevent that nail a broadish strap of cloth to the upper edges, and tie firm, or fold over the surplus breadth, either prevents it dropping and closing the entrance against the bees. A hive so covered with the addition of dried grass on the top cannot be improved upon, and I consider hives uniformly and neatly covered need not be an eyesore in any garden. The alighting board must be the full width of the hive, 4½ inches broad, and attached to it by means of two staples and hooked wires to form a hinge. Another board 9 inches broad reaches to the ground at any angle required. If the alighting board is hinged to the hive with brass butts the hive becomes much handier to move about. Four supers should occupy the whole superficial top of hive, but if a protector is used then they should be made to allow it to slip over the supers easily. Caution.—Prevent any hard substance getting between the supers and protector, or there will be a difficulty in taking the latter off.

The moveable porch should not be less than 8 inches high in the clear, and 4 to 6, or even 8 inches wide, and extend the whole width of the hive; if broader than the first named it should be correspondingly higher. The main advantage of a porch is to prevent the bees being whisked from the alighting board by high winds, and there is nothing better than two broad haffets reaching to the ground, and as high as is convenient.—LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Ed. Pynaert Van Geert, Ghent, Belgium.—*General Catalogue of Plants, 1890.*

Ryder & Son, Sale, Manchester.—*List of Primulas and Begonias.*

Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway.—*Catalogue of New Plants, 1890 (Illustrated).*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Continental Tradesmen (*Sundriesman*).—We have no list of the particular class of dealers to which you refer. Lists of continental nurserymen are published in the "Horticultural Directory."

Peculiar Auricula (*Somerset Ward*).—It is an example of fasciation, which, however, is more commonly seen in a combination of the flower stalks than in the corolla itself. Although there is apparently only one corolla much larger than usual, there are two series of stamens and two pistils. There are also double the usual number of calyx divisions.

Storing Fruit (*J. A.*).—Flour barrels are excellent for storing fruit in, and any other boxes or barrels that are perfectly sweet will answer, but the fruit will absorb any flavours good or bad that may linger in the boxes. See what Mr. Wright says on this subject on page 115 of his prize essay on fruit-growing, post free 1s. 3d. from this office.

Dahlias (*J. McC.*).—You will find the following good varieties—Cactus Dahlias: Juarezi, scarlet; Empress of India, crimson; Constance, white; W. T. Aberly, white edged with red; Yellow Juarezi, and Cochineal, deep crimson. Single varieties: White Queen, Paragon, maroon, edged purple; Terra Cotta, bronzy yellow; Chilwell Beauty, yellow; Firefly, scarlet; and Mauve Queen.

Iron Stakes for Roses (*J. G.*).—Your letter was one post too late for being answered last week. We have seen iron stakes used for standard and pillar Roses for years without injury resulting, and we know of one large standard Rose that has been secured to an iron stake for twenty years. It is very desirable to have something as a pad between the stem and the stake. We have heard of iron stakes affecting Roses prejudicially, but no instances have come under our notice. They have been used for Dahlias in a garden for forty years with the greatest satisfaction.

French Salads (*H. R. W.*).—We have seen quite as good examples of salad vegetables grown in England as in France by persons who have rich soil and suitable appliances, such as frames and cloches for early produce, but all English cultivators do not devote the same attention to salad growing as do the generality of French gardeners, and, as a rule, the same care is not exercised in preparing salads in England as in France. It is entirely fanciful to suppose that because seeds are obtained direct from France the best produce will follow. If a French salad grower obtained seeds from a good source in Eng'nd, he would raise just the kind of produce you admire in the French markets. Poor soil, and overcrowding plants when small, are the causes of many failures. Such a work as you name would not be a commercial success.

Mildew on Roses (*St. Julien*).—Syringe your Roses with a solution of sulphur and water, a 3-inch potful of the former to three gallons of the latter. The sulphur should be first mixed with a little water into a paste, and then the remainder added. If you syringe your Roses thoroughly this will destroy the mildew if you allow it to remain upon them three or four bright days and then wash it off. Cold draughts and dryness at the root will cause mildew, and nothing will keep the plants free for long if these important matters are not carefully attended to. Mr. Bardney is very careful about the admission of air to his plants, and recommends as a preventive syringing them every time syringing is needed with a solution of softsoap and water. The method of preparation is to boil about 4 lbs. of softsoap with a little water in a saucepan for twenty minutes; to this six gallons of water is added, and half a pint of the solution is placed in a large water pot full of water for syringing.

American Blight (*Id m.*).—You will find methylated spirits effectual. It should be applied with a small gum brush. Very little is needed, and most of the spirit should be pressed out of the brush before the affected parts are touched with it. Petroleum diluted will answer the same purpose, but you will fail by one or two applications of anything to root out this pest. It may require constant attention over a considerable time. However carefully syringing may be done with any solution it is next to impossible to reach all the insects. When the trees

are leafless they may be painted with a mixture of clay, tar, softsoap, and petrolcum.

Improving Fruit Trees (Young Hand).—You have not the slightest need to apologise for writing, and you can send us a letter at any time when you think it will "do you good." We think your efforts in improving the trees and garden generally most commendable, and you appear to have proceeded on sound lines. The bird difficulty is not easy of solution. It is a very serious one in some districts where the fruit bud destroyers are regarded as "pets" and protected. Birds are useful, but an excess in numbers over a given area injurious. It is so in respect to most things, and even an excess of "pets" does not add to the comforts of life. If you bring the intelligence with which you are endowed to bear on your work in improving trees and encountering difficulties, you will have as a reward in due time a fair and, we trust, a good measure of success. Towards the realisation of this you have our best wishes. Your other note cannot be attended to this week.

Journeyman's Work in Gardens (J. F.).—You ask "If it is usual for head gardeners to send their journeymen out of a night with a bulls-eye lamp and a bucket of soot to kill snails as late as half-past nine, and to expect them to go about during the summer evenings with a barrow of lime for the same purpose?" It is not usual in all gardens for journeymen to be employed as suggested, though we know of young men who are responsible for certain crops, who would and do very willingly apply soot and lime after dark when the slugs are out on their foraging expeditions, because one dressing then is more effectual than half a dozen in the daytime, when the depredators have had their feast, and are resting beyond reach of the caustic applications. In some gardens labourers are employed in such work, and paid by the hour for doing it, and that seems a fair and reasonable arrangement; but at the same time a young man seldom loses anything by showing his willingness to help in an emergency, and he does so the more cheerfully when the head gardener shares in the work, either actively or by his pleasant superintendence.

Wiring House for Roses—Pruning Marechal Niel (G. L. M.).—The wires may be a foot from the glass if there is sufficient head room. In low houses we have seen them 6 inches from the glass, and the Roses grew and flowered well; but we prefer more space for a free circulation of air between the growths and the glass. We cannot refer to the method of pruning which you say is advised in our issue of April 6th, because there was no issue of the *Journal of Horticulture* of that date this year. We were recently in a lean-to house 30 feet by 10 feet, the roof of which was covered with Marechal Niel, except 5 or 6 feet at one end. A hundred dozens of blooms had been cut, and sold at the rate of 4s. a dozen, and in all probability the long strong growths which produced them have since been cut down to the base of the rafters. That method, properly carried out, is the best we know for producing the greatest number of the finest blooms of this favourite Rose over a given extent of surface. Some persons we know have failed with it either because the plants were inherently weak, inadequately supported, or allowed to become infested with mildew or insects.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp.—(G. H.).—1, *Staphylea colchica*; 2, *Deutzia gracilis*; 3, *Scilla peruviana*; 4, *Scilla nutans*. (W. R. O.).—1, *Sanguinaria canadensis*; 2, *Omphalodes verna*; 3, *Primula rosea*; 4, *Primula verticillata*; 5, *Primula obconica*.

COVENT GARDEN MARKET.—APRIL 30TH.

A LARGE consignment of Tasmanian Apples to hand in good condition, prices at first ruling high but settling down afterwards to fairer values. Hothouse goods in steady supply.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	2	0 to 6	Oranges, per 100	4	0 to 9
" Nova Scotia and	2	0 to 6	Peaches, dozen	6	0 3
" Canada, per barrel 18	0	25	Red Currants, per ½ sieve	0	0 0
Grapes, New, per lb. .. .	4	0 6	Black	0	0 0
Lemons, case	1	0 15	St. Michael Pines, each..	2	0 6
Melons, each	2	0 4	Strawberries, per lb. ..	3	0 6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, dozen	0	0 to 0	Mushrooms, punnet .. .	1	6 to 2
Asparagus, bundle	2	0 4	Mustard & Cress, punnet	0	2 0
Beans, Kidney, per lb. .. .	1	6 0	Onions, bushel	3	0 4
Beet, Red, dozen	1	0 2	Parsley, do en bunches 2	0	3 9
Brussels Sprouts, ½ sieve	0	0 0	Parsnips, dozen	1	0 0
Cabbage, dozen	1	6 0	Potatoes, per cwt.	3	0 4
Carrots, bunch	0	4 0	" New	0	2 0
Cauliflowers, dozen .. .	2	0 4	Rhubarb, bundle	0	2 0
Celery, bundle	1	0 1	Salsafy, bundle	1	0 1
Coleworts, doz. bunches	2	0 4	Scorzoneria, bundle .. .	1	6 0
Cucumbers, doz.	2	0 3	Seakale, per bkt.	1	0 1
Endive, dozen	1	0 0	Shallots, per lb.	0	3 0
Herbs, bunch	0	2 0	Spinaech, bushel	1	0 2
Leeks, bunch	0	2 0	Tomatoes, per lb.	1	0 1
Lettuce, dozen	0	9 1	Turrips, bunch	0	4 0

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Anemone, dozen bunches	1	0 to 4	Maidenhair Fern, dozen	4	0 to 9
Arum Lilies, 12 blooms ..	2	0 4	" bunches	2	0 4
Azalea, dozen sprays .. .	0	6 1	Mignonette, 12 bunches..	1	6 2
Bouvardias, bunch	0	6 1	" Fr., large bch	2	0 6
Camellias, dozen blooms	1	0 4	Narcissus, 12 bunches ..	1	0 1
Carnations, 12 blooms ..	0	6 1	Pelargoniums, 12 trusses	4	0 6
Cowslips, dozen bunches	2	0 6	" scarlet, 12 bchs	4	0 6
Daffodils, dozen bunches	2	0 6	Primroses, dozen bunches	0	4 0
Deutzia, per bunch	0	4 0	Primula(double 12 sprays	1	0 1
Eucharis, dozen	4	0 6	" (single) 12 sprays	0	0 0
Forget-me-not, doz. bchs.	3	0 6	Ranunculus, doz. bunches	2	0 4
Gardenias, 12 blooms .. .	2	0 4	Roses (indoor), dozen ..	1	6 3
Hyacinths (Dutch), in			" Red, 12 blooms .. .	2	0 4
boxes each	1	6 3	" Tea, white, dozen..	1	0 3
Hyacinths (English), doz.			" Yellow	2	0 4
bunches	3	0 6	Spiraea, dozen bunches ..	6	0 9
Hyacinths (Roman) dozen			Tuberoses, 12 blooms .. .	1	6 2
sprays	0	0 0	Tulips (Eng.), doz. bchs.	2	0 4
Lapageria, 12 blooms .. .	2	0 4	Violets, dozen bunches ..	1	0 2
Lilium, various, 12 blms.	1	0 3	" French, per bunch	1	0 2
" longiflorum, 12 blms.	4	0 6	" Parme, per bunch	3	6 5
Lily of the Valley, dozen			Wallflowers, doz. bunches	2	0 4
sprays	0	6 1	White Lilac, French, per		
Marguerites, 12 bunches	2	0 6	bunch	4	0 5

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, dozen ..	6	0 to 12	Ficus elastica, each .. .	1	6 to 7
Arum Lilies, per dozen ..	8	0 12	Foliage plants, var., each	2	0 1
Arbor Vitae (golden) doz.	6	0 4	Genista, per dozen .. .	8	0 1
Azalea, various, per dozen	18	0 30	Hyacinths, 12 pcts .. .	0	0 0
Christmas Rose	0	0 0	Lily of the Valley, 12 pots	12	0 18
Cineraria, per dozen .. .	5	0 9	Marguerite Daisy, dozen	6	0 12
Cyclamen, per dozen .. .	9	0 18	Mignonette, per dozen ..	6	0 8
Daffodils, 12 pots	0	0 0	Musk, per dozen	4	0 6
Deutzia, 12 pots	6	0 9	Myrtles, dozen	6	0 12
Dracæna terminalis, doz.	24	0 42	Palms, in var., each .. .	2	6 1
" viridis, dozen	12	0 24	Primula (single), per doz.	4	0 6
Epiphyllum, per dozen ..	0	0 0	Rhodanthe, per dozen ..	8	0 10
Erica, Cavendishi, per pt.	2	0 3	Roses (Fairy), per dozen	8	0 10
" various, dozen	12	0 18	" 12 pots	12	0 24
" ventricosa, per doz.	15	0 24	Saxifraga pyramidalis,		
Euonymus, var., dozen ..	6	0 18	per dozen	0	0 0
Evergreens, in var., do en	6	0 24	Spiræa, 12 pots	8	0 12
Ferns, in variety, dozen..	4	0 18	Tulips, 12 pots	6	0 9

Budding Plants in variety, in boxes and pots.



THE JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

THE issue of the first part of this journal in a quarterly form is a new departure, calculated to extend the usefulness of this Society, for the work, though less bulky as a quarterly than a half-yearly publication, has a wider and more general scope, which includes many minor details of agriculture, and short pithy articles under the distinctive heading of "Notes, Communications, and Reviews," the first of which by Mr. Charles Whitehead on "Fruit Farming for Profit" is really a review of Mr. J. Wright's prize essay on "Profitable Fruit Growing," of which the veteran Kentish "grower" evidently entertains a high opinion, for he says of it, "To those whose lot is not cast amid orchards and fruit plantations, who are ignorant it may be of the first principles of fruit culture, this work would be invaluable."

Of special articles Mr. Ernest Clarke, Secretary of the Society, has an interesting paper on "The Foundation of the Royal Agricultural Society," followed by the important contribution of Sir James Caird on "Fifty Years' Progress of British Agriculture," in which the chief features—not by the way always progressive—are portrayed with a masterly hand. The writer "marks time" in every change of our agriculture during the existence of the Society, and notably so when he says, "The collapse of prices which took place in 1885, falling as it did upon an agricultural class already impoverished, has greatly disheartened both landlords and tenants, and has seriously crippled their power to give employment to their labourers. Its effects are at the same time felt among the tradesmen in the country villages and towns, whose business is dependant on the spending power of the country squires and farmers. It is a remarkable fact, illustrative of the change of the agricultural

system, naturally brought about under the influence of foreign competition, that the home production and value of Wheat in England and Wales at the end of fifty years of the existence of the Society, which at the commencement was estimated by Mr. Pusey at 13,500,000 quarters, worth £31,000,000, will not in 1890 exceed one-half of that quantity, and be worth not more than one-third of it in value." He goes on to show the swift increase of the area of land under permanent pasture, of its probable further extension and limits, and to what extent British agriculture may be calculated to hold its own in the future. The paper abounds with matter of importance, which will furnish subjects for thought and discussion among agriculturists for some time to come.

An article by Mr. Henry Evershed on "The Early Fattening of Cattle and Sheep" has something of the tone of an historical sketch, touching points of progress in the more prominent breeds. He touches on the importance of careful selection, of dentition as a guide to determine the age of young animals, and gives useful examples of the practice of some of the best managers of live stock. Here he enters usefully into details of treatment, especially in regard to diet. The gist of the whole article is, Select and breed with judgment, rear the calf or lamb carefully, allow no falling-off in condition, but finish and sell the animal as quickly as possible, and it is bound to prove profitable. In proof of this, evidence is adduced that it costs no more to finish twenty well-bred young bullocks under skilful treatment than it does half that number of Irish steers that have been let down in condition.

Sir J. B. Lawes, in "The Food from Agricultural Crops," gives us another suggestive paper from which many a useful hint may be gathered. It dwells chiefly upon the sources of nitrogen, and it shows how, after a very wet winter and spring, the soil in which winter corn is growing may be low in nitrogen, and we take it that the practical application of this teaching is to apply a surface of nitrate of soda to such corn at once. An able article, too, is that in which Mr. William Carruthers gives the results of his observations on some English pastures, which, if taken apart from the Rye-grass controversy, is of considerable importance, for the observations embrace pastures in several counties. They have evidently been made with judgment and care; the deductions are sound, and he says well that, "In laying down land to pasture, as in sowing fields with Wheat or any other crop, we must try to surpass Nature. We must bring together the most nutritious perennial plants which will supply palatable food for stock as far as possible all the year round, and we must exclude weeds and worthless grasses which we have found too abundant in natural pastures. We must also consider the almost universal complaint of the deterioration if not failure of new pastures after the third or fourth year, and avoid short-lived grasses."

The number contains much other useful matter, and it certainly gives fair promise of a valuable and popular series. The price is now only 3s. 6d., and we strongly recommend owners of home farms to give a copy to their bailiffs as a wise investment in their own interests, for the teaching is sound, and the writers have evidently all given full recognition to the Society's motto, and have striven to combine practice with science.

WORK ON THE HOME FARM.

Since writing our last note we have seen some excellent crops of Winter Beans with a full plant as healthy and vigorous as heart could wish. The loss of plant appears to be confined very much to clay farms where a considerable area is usually devoted to this crop. Experience has shown that the loss of plant in spring on such land generally follows an exceptionally mild wet winter, which induces early growth and renders the plant liable to injury from late frosts. The harm is done close at the surface, where the temperature is always lowest, the cuticle being destroyed, which leads to the decay of the root and destruction of the plant. This year the harm was done by the short spell of very severe weather during the first week of March, when we had upwards of 20° of frost, and the minimum temperature of March 4th was the lowest recorded in that month for thirty years.

Pasture from which the stock was withdrawn last October is now

sufficiently forward for the dairy cows, affording an agreeable contrast to that of a neighbour who turned out cows and store beasts daily throughout winter, often only to stand about shivering in cold and wet, with the miserable result of now having a bare pasture, and what is even worse, four cases of abortion which the veterinary surgeon attributes to exposure. Abortion is often termed a mystery, but in this as in many other instances it is a result of mismanagement.

Among green crops sown this spring one of the most important was a few acres of Lucerne near the homestead, chiefly for horses, but also for the cows. This is one of our most useful and safe forage crops, altogether preferable to such a doubtful novelty as Prickly Comfrey, for once established it may be mown repeatedly every summer; it continues in full vigour for several years, is unaffected by drought, and only requires sowing in rows wide enough apart to admit of the free use of horse hoes to keep down weeds. Why it is not sown as extensively as Sainfoin, Clover, or mixed seeds, is a question we have never been able to answer to our satisfaction, for the value of the crop is so apparent, and all animals are so fond of it, that instead of being practically ignored as it now is, it ought to hold a leading position among such crops.

OUR LETTER BOX.

Gorse and Comfrey as Forage Crops (Long).—Cut, crushed, and mixed with chaff and other food, Gorse is a valuable addition to the dietary of both horses and cattle. It also has a special value as food for dairy cows in winter and spring, as it tends materially to improve both the quantity and quality of the milk. Here is its analysis:—

Water	...	...	...	...	72.0
Albuminoids (flesh formers)	...	...	...	...	3.2
Fats	...	...	...	...	1.1
Carbohydrates (heat producers)	...	...	...	...	8.2
Ash	...	...	...	...	8.0

The fibre may be taken as making up the numbers to 100, and to show the value of this analysis we may add that the per-centage of albuminoids in Oat straw is 3.5, or a mere fraction more than in Gorse. It thrives in poor thin soil, and yields from 7 to 10 tons per acre every year after it is well established in the soil. It should be sown at once in a fine seed bed in drills 9 inches apart, using about 25 lbs. of seed per acre. The young plant is not ready for use till the second winter, and it suffers from weeds, so that in land at all foul the drills should be sufficiently wide apart for a free use of the horse hoe between the rows, in which case much less seed will be required. When once established it may be mown just like any other forage crop, and it continues throwing up an annual growth of wonderful vigour in shallow soils, where hardly any other profitable crop can be grown. Prickly Comfrey, on the other hand, is a much overrated plant. We gave it a fair trial in deep alluvial soil, where it grew freely enough, but nothing would eat it freely, and the only way to get rid of it was to pass it through the chaff-cutter and mix enough other food with it to induce the stock to consume it. In this way it may be turned to account, but having regard to the fact that it is a gross feeder, requiring deep rich soil at the outset, and heavy dressings of manure subsequently, we came to the conclusion that it was unworthy of extensive culture, and we simply retained a small plot of it upon the home farm for a few years as a curiosity.

METEOROLOGICAL OBSERVATIONS.

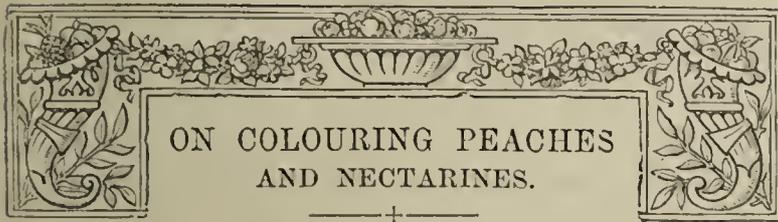
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	1890.	Barometer at 32° and Sea Level.	Hygrometer.		Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.		Max.	Min.	In sun.	On grass.		
April											
Sunday	20	30.167	42.1	38.2	E.	44.5	54.2	38.0	85.4	86.8	—
Monday	21	30.198	53.8	50.0	S.E.	44.9	58.7	41.9	93.2	88.1	0.153
Tuesday	22	29.884	51.9	50.8	S.W.	46.1	63.3	48.8	110.9	47.7	—
Wednesday	23	30.010	51.4	45.9	S.W.	46.4	59.6	49.1	105.6	36.2	0.164
Thursday	24	29.652	50.2	48.4	N.E.	47.0	54.6	44.1	72.1	44.0	0.127
Friday	25	29.253	44.1	43.2	N.E.	47.0	50.7	43.7	79.3	43.3	0.543
Saturday	26	29.598	48.9	42.2	calm.	45.3	54.8	33.9	85.3	27.6	0.184
		29.823	48.9	45.5		45.9	56.6	41.5	90.3	39.1	1.168

REMARKS.

- 20th.—Fine and mild, with occasional faint sunshine.
 21st.—Bright early; cloudy and hazy morning; frequent spots of rain all afternoon and evening.
 22nd.—Wet from 2 A.M. to 5 A.M.; dull and drizzly till noon, then bright sunshine and high wind, but slight showers between 3 and 4 P.M.; clear night.
 23rd.—Fine and frequently bright in the morning; alternate sunshine and showers in afternoon; wet night; solar halo 4 to 5 P.M.
 24th.—Dull and damp early; cloudy till 3.30, then a little sunshine, and rain in evening.
 25th.—Very wet from 7 A.M. to 1 P.M.; cloudy till 3.30, then frequent sunshine.
 26th.—Brilliant early, and fine and generally bright till 11.30, then overcast and dark; heavy rain from 0.30 to 2.30 P.M., then fair again.
 Range of temperature still rather small, temperature near the average, a wet week, grass frozen on 26th.—G. J. SYMONS.



ON COLOURING PEACHES
AND NECTARINES.

WHATEVER may be said as to the relative qualities of coloured and uncoloured fruit, there cannot be two opinions as to which may be considered the most appreciated generally. Not merely are highly coloured fruits the most preferred, either for home dessert or exhibition purposes, but their greater value is even more strikingly apparent when they are consigned to the markets. As a matter of fact more importance is attached to high colour by Covent Garden salesmen than to any other quality, not even excepting great size, the fruit may possess. As a proof of this I have only to state that as late as July in the past year inquiries were made and tempting prices were offered in this and various other districts for highly coloured fruit, and that too when there was abundance, of Peaches especially, in the markets. Badly or only slightly coloured fruit, perfect in every other respect, would hardly fetch 6s. per dozen at that time, whereas highly coloured samples, no matter what the variety might be, were worth from 9s. to 12s. per dozen. There is no necessity to enlarge upon the greater attractiveness of richly coloured fruits on the dining table, while but few need to be told how much better chance they stand of winning a first prize at an exhibition than equally well grown or it may be much larger fruits. I am not prepared to assert that the most highly coloured fruits are the best in point of quality, but it is very certain they cannot be said to be coloured at the expense of flavour and lusciousness generally.

There being no disputing the truth of what I have just advanced, the question will or ought to arise, Why are highly coloured fruits comparatively scarce throughout the greater part of the season? All good gardeners are most anxious to colour their Grapes to the best of their ability, and why should they not be equally solicitous about Peaches and Nectarines? And echo answers, Why indeed? Probably, most probably I think, they are not so remiss in the matter as might at first sight appear, the failures to colour the fruit being more often due to misdirected efforts than to any want of zeal. Much depends upon the selection of varieties, some being naturally almost devoid of rich colours, others will not under any circumstances take much colour, while there are a few that under ordinarily good treatment are almost certain to be richly coloured. Noblesse and Princess of Wales are well known yellow Peaches, while the Alexandra Noblesse will only colour very slightly. Grosse Mignonne and its many synonyms, A Bec, Barrington, and Walburton Admirable, are not often seen well coloured, while the three varieties most frequently seen in perfection are Crimson Galande, Bellegarde, and Royal George. Among the best known Nectarines the most difficult to colour satisfactorily are Victoria, Lord Napier, and Pitmaston Orange, Pine Apple being more often seen good, but no one ought to fail with either Elruge, and especially Stanwick Elruge, Hunts Tawny, and Downton. A grower may, however, have good healthy trees of the most surely coloured forms and yet fail to do justice to them. Sometimes this may be due to the art of colouring not being studied or the necessity for it recognised; but more often than not it may be attributed to being too late with what steps are taken to accomplish the desired end. After repeated experiments I have arrived at the conclusion that the colouring ought to commence before the stoning period, and that, therefore, the fruit must be well exposed to the light in advance rather than after either the

stoning or final swelling has taken place or has commenced respectively. Especially is this necessary in the case of the more green or badly colouring Nectarines, notably Victoria and Lord Napier, as these ought to have a good tinge of colour in them when no larger than small Walnuts; in fact it is my belief the only variety of Nectarine that will colour really well without early exposure is the Stanwick Elruge, the same remark applying to the Crimson Galande Peach.

With the view, then, of growing highly coloured Peaches and Nectarines, close attention must be paid from the outset to duly thinning first the buds, then the fruits when set, and also the disbudding, stopping and early removal of superfluous leaves, or any which unduly shade the reserved fruit. Only the best placed fruits, where there is any choice, ought to be left, these being on the upper side of the branches of trees covering either roofs or semicircular trellises, and which face outwards on wall trees. I annually remove thousands of the under or back buds on the trees in our heated houses, having no doubt about or difficulty in effecting a good set, but in a large unheated house no early removal of flower buds has been carried out since we once lost nearly the whole of the uppermost or most exposed flowers by a severe frost in March. In all cases directly it is seen abundance of fruit is set the thinning should be commenced and completed before the stoning process begins. This early completion of the thinning may appear a somewhat risky proceeding, and in any case to have no direct bearing upon the colouring process, but I beg to differ from such a thought expressed or otherwise. When far too many fruits are left on a tree in anticipation of a portion of them failing to stone or swell, this is simply a sure means of inviting the occurrence, whereas if the thinning has been done early and in a judicious manner few or no fruits will fall, and the trees will not have weakened themselves in their effort to perfect more fruit than they prove capable of doing. I do not positively assert that a moderately heavy crop of fruit is the most likely to be well coloured, but we invariably gather our handsomest fruits from the trees under glass which are in the most healthy state, and over-cropping has plenty to answer for without being saddled with yet another failure.

During April and May there are so many matters to attend to that few gardeners have much time to devote to the Peach and Nectarine trees, and this may be another reason why exposing the fruit is delayed longer than it ought to be. We find, however, that unless this important detail is attended to before the final swelling commences there is a likelihood of many fruits being scalded and much disfigured during the first hot day following upon their sudden exposure. The skins of Peaches and Nectarines, the latter especially so, if unduly shaded, are very tender, and therefore most susceptible of injury by scalding. They will not endure strong sunshine, and for a time at least after sudden exposure the glass over them should be temporarily and lightly shaded. A light shading is necessary in some houses to prevent the Pine Apple and Lord Napier Nectarines from being scarred, even though they have been fully exposed from the first, and is, therefore, doubly needed where this precaution has not been taken. As it happens, abundance of light rather than strong sunshine is required, both to harden the skins and develop colouring matter generally, and there is yet another element to be taken into consideration. As a rule, the fruits grown on open walls are the most richly coloured and tempting in appearance, although not equal in quality to those grown under glass. This justifies me in assuming that plenty of air has much to do with the colouring of fruit. It is a well-known fact that some kinds of Grapes, notably Black Hamburgs, will not colour properly in a heated close atmosphere, and judging from what that eminent novelist and pomologist Mr. R. D. Blackmore puts into the mouth of a prominent character in a most interesting book entitled "Christowel," he also is of opinion that wind is an important factor in the colouring of Apples and Pears.

Be this so or not, it is very certain house-grown Peaches and Nectarines ought to have plenty of light and air, as well as heat and moisture, each and every condition being about equally essential to success.—W. IGGULDEN.

HARDY FLOWER NOTES FROM SCOTLAND.

THE garden is at present brilliant with spring flowers, and the difficulty of selecting for notice becomes greater day by day, but a few notes and reflections may be seasonable and of interest to some.

The Aubrietias are very fine this season, and form splendid mounds of brilliant yet chaste colouring. Conspicuous among them is *A. Leichtlini*, which well deserves the encomiums it has received. The habit may not be quite so compact as that of *A. rosea*, but the colour is certainly better, and the two are welcome "breaks" from the other varieties. Could we only have a better white Aubrietia than *A. Antilibani*, which is too dingy, we would have a charm added to the spring garden which we would gladly take advantage of. The common *Arabis albida* is as yet the best white flower to associate with the Aubrietias for early bloom. Add to this *Saxifraga Wallacei* or *Composi* for succession, and but little is required. The *Arabis* is more fleeting, and is now getting past its best, while the *Saxifrage* is giving us only a foretaste of the beauty it will exhibit in another week. Many other Mossy *Saxifrages* are now in flower or rapidly coming forward. That little gem *S. muscoides atropurpurea* is now very fine, and what was to me a new species named *S. globosa* was just coming into flower in a garden I saw a few days ago. The half opened flower of *S. globosa* would lead one to expect a large form of *muscoides atropurpurea*, but the flowers when open are a beautiful blush. Possibly they may pass off white, but I have not seen the plant at this stage. We may be losing something in our rage for "new things." The little *S. hypnoides* covering some stones, and hanging down to and encroaching on a gravel walk, was a picture of beauty a week or two ago with its beautiful dark green velvet-like mound of foliage, and now it is rapidly covering itself with its little flowers, which are far from being so pure as some, but are yet beautiful. The whole genus is an especial favourite of mine, but one fault in the pursuit of knowledge regarding these beautiful plants is the difficulty encountered in identifying species received without names.

Several *Fritillarias* are now in flower, and it is unfortunate that the most effective position for the display of their nodding flowers is so often denied them. They are seen at their best on rockwork at or near the level of the eye, but are too frequently planted in the ordinary border, where the want of brilliancy of colour, which characterises so many of the species, causes them to remain almost unnoticed, so nearly does this approach to the colour of the bare earth. Although not recommending or considering the advantage of growing them on rockwork, Justice, who published the second edition of his "Scots Gardiner's Director" in 1759, and who seems to have been an enthusiastic cultivator of *Fritillarias*, might teach some of us in the nineteenth century a lesson in garden effects. He recommends planting Dog's-Tooth Violets as a groundwork, with *Fritillarias* in rows between the *Erythroniums*, "for," as he says, "the *Fritillarias* flowering much about the same season with the *Dens canis*, the former is naked in its stalk, and carries no Leaves near the Ground, whilst the low Leaves of the *Dens canis* adorn and embellish the Surface of the Beds, and the flowers of the Variety of *Fritillarias* seem to proceed from the beautiful variegated Leaves of the *Dens canis*." Justice gives a long list of *Fritillarias*, all of which he says are Dutch seedlings; but some appear to be the same as some given by Philip Miller as species. The subject is a tempting one, the genus being very interesting, although it is not everyone who can appreciate the beauty of the flowers. For instance, *F. pyrenaica* is externally sombre and rather unattractive, but turn up the bell-shaped flower and it is impossible to withhold an expression of admiration at the colour and markings of the interior; and *F. meleagris alba* is one of the daintiest of our spring flowers, and a fine clump of this exquisite variety which I saw the other day would evoke admiration from many who care little for such types of flowers.

Numbers of the *Narcissi* are now in flower, but the recent report of the Daffodil Conference renders comment almost superfluous. I was much disappointed in a hurried visit to the Edinburgh Botanic Garden on April 18th to see so few of the Daffodils; indeed, comparatively few hardy plants were in flower, and one was struck with the lateness of the season in Edinburgh compared to what it is with us on the Solway. A few species of *Muscari* were in bloom, and *M. armeniacum*, *M. atlanticum*, and *M. Szovitzianum* were among the best, the last apparently superior to the others. A very dark-coloured flower was named *Botryanthus*

atlanticum. This bears a considerable resemblance to *Muscari racemosus*, but is larger, and has more of a purple tinge on the flowers. In the same gardens *Anemone pulsatilla* showed how well this fine native species is adapted for the rock garden.

One of the neatest of the Iberises, *I. petræa*, was coming into flower. A few days later I had the pleasure of examining one of the best collections of alpine in the south of Scotland, and one of the finest plants in flower was a *Thlaspi*, *T. alpestre*. It appears to be by far the finest of the genus, and is of close dwarf habit with flowers of a pure white. It is, I believe, a scarce plant, and I am of opinion that it is not at present in commerce. The little *Erysimum pulchellum* is doing well this season, and its clear yellow blooms have shorter stems than usual, which is a decided advantage, as some seasons the stalks are too long for the size of the flowers. This *Erysimum* does best with me planted on a ledge of rockwork, and allowed to hang over. In winter, if in an exposed situation, it seems to suffer much from the bitter north winds. We have had an early season all along, and although the cold east winds have checked things, no great harm has been done. To-night (April 29th) a gentle rain is falling, which will revive plants beginning to suffer, so that we may expect in a day or two to have additional charms added to the display of the season, which has been the most favourable for our light soil that we have experienced for some years.—S. ARNOTT.

THE CULTURE OF LETTUCES.

ALTHOUGH the Lettuce is by no means a difficult plant to grow, the production of large solid heads of crisp leaves is not so general in gardens as it should be. This is to be accounted for in many ways, the main cause being sowing the seeds too thickly and the consequent crowding of the plants before they are pricked out in nursery beds, and finally transplanted in the positions in which they are to develop. This error is too common, not only in raising Lettuce plants, but also Cabbages, Cauliflowers, and all plants of the Brassica family, and I may add plants of every description indoors as well as out. It is an evil that no judicious after treatment will altogether remove, though good culture will do much towards securing fairly satisfactory results from plants so neglected.

Lettuces—other points being properly attended to—will succeed in any fairly good soil. Early and late planting should be made in a warm and somewhat dry situation, this being preferable to a cool moist one. But these conditions are highly favourable to the production of Lettuces of the best quality during the summer and early autumn months. Liberal dressings of well decayed manure should be dug into the ground a good spit deep some time before setting the plants in it, although very satisfactory crops are yearly obtained by planting the ground the same day it is dug. However, should the manure dug into the ground be of a rank description, it is certainly prudent to defer planting for a few days until the rankness has escaped. Plants raised in autumn, wintered in cool pits and warm dry borders, and planted out with good roots in February and March in warm situations in rows 1 foot asunder and the same distance between the plants in the rows, will soon be fit to cut, and in many places will supplement the supplies of salading hitherto obtained from plants growing under glass. Lettuces raised in heat in January and afterwards gradually hardened before being pricked off in warm corners out of doors will succeed the autumn-raised plants transplanted in February and March, the supply being continued by plantings made from seed sown at the foot of a south wall or fence towards the end of February or early in March, and again at the end of the latter month, the middle of April, and at intervals of three weeks up to the middle or end of August.

Many excellent varieties of Lettuces have been introduced into commerce in recent years; so many, indeed, as to perplex not a few gardeners and amateurs making out seed orders. However, the following may be mentioned as being among the best to grow—viz., Sutton's Mammoth White (Cos), Paris Green (Cos), Carter's Longstander (Cabbage), Sutton's Favourite (Cabbage), and Grand Admiral (Cabbage) are everything that could be desired for summer and early autumn use. Sowings of Carter's Giant Bath (Cos), Kingsholm (Cos), and Sutton's Marvel should be made about the end of the first or second week in June, and again a month later. Plants from these sowings will be ready for use in September, October, November, and December. The last sowing to raise plants for use in heated and cool pits during the months of January, February, and March, and in sheltered sunny situations out of doors in April, May, and the early part of June, should, as already stated, be made from the middle to the 25th of August, according as the locality is late or early. This sowing should consist of such well-tested varieties as Improved Black-seeded

Bath (Cos), Hicks' Hardy White (Cos), and Hammersmith Hardy Green (Cabbage).

PRICKING OUT AND TRANSPLANTING.—If these operations are not carried out in due time the plants become crowded in the seed and nursery beds, and poor results are obtained in consequence. Therefore, if the object be to produce examples of good cultivation in the shape of large close heads of tender Lettuces, the young plants when a couple of inches high and before they touch should be pricked out in a border having a south or west aspect in rows about 4 inches apart and at the same distance in the rows, making the soil moderately firm about the roots, and if no rain fall at the time supply water through a rose-watering pot to settle the soil about the roots. If the ground be ready by the time the young plants are fit for pricking out they may be placed in rows 12 inches asunder and at the same distance between the plants in the rows, giving water to settle the soil about the roots, as already advised. Before planting the ground should be trodden and surface-dressed with soot before raking it level, as the Lettuces will do better by being planted in a fairly firm ground, and the dusting of soot will save them from the attacks of the grub, which in some soils is very destructive, eating through the stems of the plants underneath the surface of the soil. However, very good Lettuces may and are every year grown on Celery ridges during the interval of making the trenches and earthing-up the Celery plants in summer. But if plants thus grown are not pretty well supplied with water at the roots during a spell of dry weather thin loose heads of tough leaves will be the result. Where there is plenty of ground the largest, most solid, and crisp heads of Lettuce are secured by sowing the seed very thinly in drills about 1 inch deep and 12 inches apart, the ground having been previously dug, trodden, and raked level, afterwards closing the soil in drills with the feet, treading and raking it level in the same direction as the drills. In due time the plants should be thinned, first to 6 inches apart, and later on to 12 inches in the rows. Thus grown, and being afterwards attended to in the way of giving water at the roots when necessary, the plants never experience the slightest check.

In transplanting Lettuces, which had been previously pricked out as indicated above, they should be taken up and planted with a garden trowel with good balls of soil adhering to their roots, letting them into the ground the same depth as they were before, and making the soil firm about the roots. In making early plantings of Lettuces level the soil well up about the stems of the plants, so as to prevent the lodgment of water with the result of encircling the plants occasionally with ice. But on the other hand, in making plantations during the summer a slight depression should be left round the collars of the individual plants for the reception of water. Successional plantings, like the sowings, should be made every three or four weeks to the middle of August. The plants raised from seed sown during the latter month should in due time be dibbled out, those in slightly heated pits at 6 inches every way from plant to plant, drawing every other plant for early use before they touch, allowing 3 inches between the plants in cool pits and in warm and somewhat dry borders out of doors. The plants in cool pits and out of doors must be protected from frost by shutters and fern and similar material. Slugs being very troublesome to Lettuce plants so grown they should be sought and destroyed, subsequently laying occasionally a mixture of fresh soot and lime between the plants and the wall, fence, or edging as a means of keeping them off.

Plants raised from seed sown in June and July will be ready for cutting in the late autumn and early winter months, and good breadths should be planted for this purpose. The July raised plants for lifting with good balls of earth, and carefully transplanting 3 or 4 inches asunder in a cool pit or frame, placed on a south border, before they are injured by frost, say the end of October. The plants may be placed the same depth in the ground as they were before, giving water to settle the soil about the roots. This should be poured through the pipe of the watering can round the stems and roots, so as not to wet the leaves. These plants should have abundance of air in the absence of frost and heavy rains, and always bear in mind that the great enemy to be guarded against in the preservation of Lettuces during the winter is damp.

The only attention which the several plantations made during the spring and summer months from the interval of planting to cutting is to keep the plants well supplied with water at the roots during dry weather until they have taken well to the soil, and to keep them free from weeds by passing the Dutch hoe between the rows a few times, an operation that will at the same time promote growth in the plants.

BLANCHING THE HEADS.—The object of the cultivator should be to get as great a portion of the leaves of the individual heads of Lettuce as white and tender as possible, therefore recourse should be to tying up the leaves, but not too tightly, with bands of matting

when the heads are nearly full grown. The leaves of the Cos Lettuce being, as a rule, self-folding they do not require tying, although by doing so the process of blanching is more completely effected. The Cabbage Lettuces generally require being tied up; this should be done when the leaves are dry. One band of matting tied within a couple of inches of the top of the heads is quite sufficient for each Lettuce.

As wood pigeons, pheasants, and sparrows are in some districts very partial to young Lettuces their movements should be watched, and if necessary a piece of garden netting be placed over the plants until they have become well established and the attention of the feathered tribe diverted.—H. W. WARD, *Longford Castle, Salisbury.*

VARIATION IN PLANTS.

(Continued from page 355.)

As regards marvellous floral forms and adaptations, no family of plants equals the Orchids, but it is impossible to deal with their structural peculiarities in reference to cross fertilisation in these notes. Charles Darwin's book on the subject contains the greatest number of facts observed or recorded, and elsewhere I have endeavoured to give a few ideas on the subject. One peculiarity stands out prominently in the Orchids as a means of attraction, and that is the labellum or lip, a singularly modified structure, totally distinct from anything in other flowers, but with just a distant resemblance to the lower portion of the corollas in the "two-lipped" flowers previously noted. It is in this organ that the majority of the modifications occur that render Orchids so exceedingly interesting, and the rich colouring often in bold streaks and bands render them equally beautiful. The lip serves as a lure to insects; it even serves as a bait, and in some cases as a trap for the creatures it compels to perform the service of hybridisers. The strange resemblances to other insects in certain cases, the powerful odours, and in some cases even the unusual colours are all directed to the same purpose.

But it is not in the corolla alone that means are provided to ensure cross-fertilisation; the stamens in numerous instances show quite as evidently their structural adaptation for a certain purpose. In the two-lipped flowers, the *Salvias*, &c., they are often strangely curved; in the upper hooded portion of the corolla the separated lobes of the anthers are curiously hinged connecting portions, so that an insect when entering the lower part of the flower touches one end and forces the other down on its back, the pollen being then carried to another flower.

The stamens are sometimes of different lengths, as in the *Primulas*, giving rise to the phenomenon of dimorphism or trimorphism, when two or three forms respectively are present. Long stamens and a short style (thrum eyed flowers of florists); short stamens and a long style (the pin-eyed flowers of florists); and when the stamens and the style are about the same length. Combinations between these forms give different results, but the intercrossing of two extremes give the best. Occasionally, also, the anthers are in a mature state before the pistil of the same flower, and the reverse occurs in some instances, this being really a means to prevent self-fertilisation, and consequently indirectly to encourage crossing, at least with other plants of the same if not with distinct species.

There are still other modes of promoting cross-fertilisation in a state of nature—namely, where the pollen is produced very freely, is light and powdery, and consequently is easily distributed by the wind. The *Willows* and many of our deciduous trees are examples of this, and in most cases the flowers are individually inconspicuous, but compensate to some extent by being in clusters or dense drooping catkins. Having now briefly reviewed the chief points in regard to natural cross-fertilisation, we may turn our attention for a few minutes to the same process as conducted by us under artificial conditions.

ARTIFICIAL CROSS-FERTILISATION.

What has been already said will indicate that in some of the modes described, or by a combination of them, plant variability is induced in nature on an extensive scale and continuously, and when we reflect upon the ages during which this has been in operation it is not surprising that plant forms are extremely diverse, and distinct floral structures equally numerous. A little attention to what has been effected artificially, even within the present century, is sufficient to show how great the range of variation is and how much can be done by the skilled horticulturist to multiply the beautiful and useful flowers and plants in our gardens. What has been done in the past should act as a guide to the future, and it is work in which almost every amateur and gardener can engage. The subject is very far from being exhausted, and some of the

greatest future triumphs of horticulture must be looked for in the results of methodical hybridising. It is, however, essential to start with an object, work on a system, be patient and persevering, and results will ultimately come perhaps of a surprising character. Amongst both ornamental plants, vegetables and fruits there is still ample scope for experiments, and if these give nothing else they at least afford considerable interest.

In undertaking artificial hybridising or crossing the condition of the plants should be carefully studied. It by no means follows that apparently strong plants are really the best as parents, either as seed or pollen parents. It often happens that excessive vigour in plants is antagonistic to the production of good seed or strong and improved seedlings. The vegetative and reproductive system of plants seem to be in a measure opposed to each other after a certain stage is passed. Plants of moderate growth are invariably the best seed producers, and usually afford the best pollen also. This is one point that should always be kept in mind in commencing experiments in hybridising, and never attempt by the application of stimulating manures to induce excessive growth under the mistaken impression that an advantage will be gained. If anything is required beyond that afforded by the soil in which the plant is growing it should be given after the fruit or seed pod is swelling. At the same time weakly plants should never be chosen for the purpose, and in the case of rare Orchids it is dangerous to allow a small or improperly developed plant to bear seed, as the common result is the death of the parent. It requires some judgment to select plants in a fitting condition, but it is always safe to select the sturdy, the well matured, and the hardier plants for seed parents.

The relative effects of seed and pollen parents I have treated at some length in a paper on the subject read at a meeting of the Horticultural Club recently, and which appeared in the *Journal of Horticulture*, page 234. It is only necessary to recapitulate the chief points of interest here. One is that in some cases, especially in the Orchids, a complete fusion of characters takes place in nearly every instance where cross-fertilisation has been effected between species.

Another is that in some plants, *Primula sinensis* and its varieties being cited as examples, the seed parent gives the majority of the characters inherited by the progeny. As a general rule the seed plant gives more of the habit and foliage, and the pollen the floral colouring, but there are many exceptions to this in different families of plants.

To produce a definite result close interbreeding sometimes becomes necessary, but simply to induce variation and secure as many distinct forms as possible it is better to cross plants as distinct in characters as possible, and grown under different conditions of soil and surroundings. Remember also what has been noted with regard to diverse lengths of stamens and the different periods at which pollen and stigma mature. All these matters have a direct bearing on the success or failure of experiments in hybridising. It is strange also, but it is nevertheless a fact, that where variability is greatest in particular species of plants, the pollen grains are usually most diverse in form, and the examination of pollen under a microscope of moderate power will often in this way indicate whether experiments are likely to prove satisfactory or not.

Partial fertilisation, when only some of the seedlings seem to have been affected in their characters, and sterility when the seedlings resulting from a cross fail to produce seeds, are examples of imperfect pollen action, or are due to some constitutional differences that we cannot ascertain. The greater vigour of some hybrids as compared with their parents is chiefly due to the sterility, and as a corrective to this less liberal treatment sometimes has a beneficial effect.

SELECTION.

In connection with crossing and seed-raising of all kinds, however, it is imperative that strict attention be given to selection, and it is in this that the judgment of the skilful hybridiser becomes most useful. It applies equally to the selection of parent plants and to the selection of seedlings for preservation. An accurate knowledge must be possessed of the plants under treatment; a quick eye and good power of observation detecting any special character that it is desirable to secure. Wherever large numbers of seedlings of any kind are raised the keen selector can often do nearly as much as the hybridiser on a smaller scale. Seed-sowing and rigid selection, leaving the fertilisation to the bees and other insects, have yielded remarkable results in many classes of hardy plants.

I must conclude these imperfect references to a great subject, and I can only hope they may prove suggestive. Patient perseverance and close observation are useful qualities to all men, and

whether we be students of the vegetable world, experimentalists, or workers, these qualities are indispensable to secure a measure of success.—LEWIS CASTLE.



AN EXHIBITION OF ORCHIDS.

ORCHIDS have had a long period of popularity, but never at any time in their history have they had so many admirers as now, and though some celebrated collections have been dispersed, others rapidly becoming equally famous are being formed, and the number of cultivators is still advancing. Ample evidence is afforded on all sides that Orchids are not only the favourites of fashion and curiosities for the student, but they include in their ranks plants of exceptional garden value wherever beautiful flowers are prized and floral decoration is required of a distinct character. They are in fact both beautiful and useful, returning a rich harvest to cultivators of all grades who give them the moderate attention and care needed to ensure a fair measure of success.

Mr. William Bull of Chelsea may claim a considerable share in the extended popularity of Orchids in recent years, for his annual exhibition at the King's Road Nursery has attracted large numbers of distinguished visitors, who have had their love and knowledge of the plants materially increased by what they have seen there displayed. Beyond this, however, many have probably for the first time there formed an adequate idea of the diverse charms possessed by Orchids, and when once the enthusiasm of an amateur is well awakened it is not readily restrained. The display Mr. Bull provides must certainly afford a surprise to any visitor who is not very familiar with the plants, and even those who are well acquainted with Orchids too rarely see them arranged so tastefully. It does not seem to be generally regarded that Orchids lend themselves most readily to artistic grouping, and attractive as a house or group of *Odontoglossums* or *Cattleyas* alone may be to a specialist, the uninitiated require an effect in which the diversity of form and colours is more strongly marked.

Recognising the innate adaptability of Orchids for grouping with Ferns, Palms, and similar graceful foliage plants Mr. Bull has availed himself to the fullest extent of their qualities, and has produced this year one of the most pleasing exhibitions he has yet held. This was opened on May-day, and will be continued for the next two months, sufficient proof of what a lengthened period Orchids may be made to cover, though this only represents the months when they can be obtained in greatest variety; for with a good collection of plants flowers can be had every day in the year. The house in the Chelsea nursery is span roof, with banks at each side and in the centre, and each end being fitted with mirrors produces the pleasing illusion of an indefinite extension, a prolonged vista of floral beauty. To enumerate all the Orchids shown would necessitate the publication of a formidable list of names that would after all convey a very imperfect idea of the effect provided. The most brilliant and richest shades of colour are harmonised or strikingly contrasted, and soft delicate tints are employed with equal judgment. Majestic *Cattleyas*, delicate *Odontoglossums*, and the popular *Cypripediums* are represented in their best forms, and contribute largely to the show. Specimen plants of *Cymbidium Lowianum*, handsome *Dendrobiums* in many species and varieties, *Masdevallias* both beautiful and peculiar, *Oncidium*s in their wealth of golden flowers, and scores of others that cannot be named now assist in making an Orchid exhibition that conveys a faithful idea of the family it represents.

ORCHIDS AT BERLIN.

In the recent International Exhibition at Berlin the display of garden architecture is said to have constituted the chief feature, but amongst plants Orchids were largely represented, chiefly from continental growers. Messrs. F. Sander & Co., St. Albans, were the only exhibitors from England, and contributed a fine group of over thirty specimen *Cymbidium Lowianum* bearing 2000 flowers; 200 plants of *Odontoglossum vexillarium* were also shown, with a specimen of *Oncidium ampliatum majus* bearing 5000 flowers and buds, and a *Dendrobium Brymerianum* 3 feet in diameter with 200 flowers. Besides other awards Messrs. Sander & Co. secured the only two honorary gold medals offered. Some large specimens of *Clerodendron Balfourianum* were exhibited by Mr. John Fox,

gardener to Count Henekel Von Donnersmarck, Upper Silesia, which attracted much attention from the English visitors. The plants were over 6 feet high, 3 feet in diameter, and were loaded with flowers.

MEGASEAS.

IN gardens where diversity and general picturesque beauty is sought Megaseas or Giant Rockfoils should always hold a prominent position, since we have few plants so distinctly beautiful for the greater part of the year, and at the same time so well suited to a variety of uses. We sometimes find really handsome established tufts of the commoner species, such as *M. cordifolia* and *M. crassifolia*, but it is only in isolated cases, and I only know of a solitary instance where they are grown extensively, and where also they are put to elaborate use, with such excellent results year by year. That solitary instance is in the charming spring gardens at Belvoir, and there it is one of the grandest hardy plants one could ever wish to behold, the species so extensively employed being *M. ligulata*, one of the best of the whole group; and if the exceptional luxuriance of this plant could be produced under ordinary circumstances, there is no doubt that it would soon become famous. The gardens of Belvoir Castle are, however, wonderfully favourable for the growth of these and many other hardy plants, for although I have grown this species by the hundred, I have never been able to obtain the noble foliage and the giant spikes of flowers which it produces in the gardens referred to above. Nearly or quite 2 feet high, with only ordinary care in somewhat stiff soil, and a sheltered spot, it is annually a charming picture of rosy white flowers in spring, while its foliage, carrying tints of bronzy hue in summer and autumn, renders it a welcome addition for association with other plants of more sombre hue.

From a cultural standpoint these Megaseas require a deep rich soil, rather stiff than otherwise, and which is all the better for the plants when fairly moist throughout the year; then in a position sheltered from cold and cutting winds, *M. ligulata* is a truly noble plant. One thing, however, has surprised me from time to time, and it is the extreme variability to be found in their adaptability to soils and positions. For example, *M. ligulata* in warm well drained light soil loses every vestige of foliage annually, but this is always retained in sheltered positions. I have side by side in the open ground that above named, also *M. crassifolia*, *M. cordifolia*, and *M. cordifolia purpurea*; the three latter are evergreen, and the last, notwithstanding that it has been propagated rather hard, outstrips all the rest in vigorous constitution, perfect hardiness in all winters, endures drought with impunity, and produces grand spikes of its pendulous bell-shaped reddish purple annually nearly or quite 2 feet high. But while this does so remarkably well in drier soils, I incline to the belief that it would be even more massive and luxuriant in a stiffer moister soil, and whether in flower or not the red bronzy shaded are always pleasing and effective. It is of garden origin and only of recent introduction. The type species *M. cordifolia* is a native of Siberia: *M. crassifolia* is also very distinct and attractive, forming close tufts of erect reddish leaves and spikes of rosy red flowers. Then there are *M. purpurascens* somewhat resembling the last named in growth, having deep purple flowers. A native of the Himalayas.

There are others again, the hardiness of which is by no means certain, and which must receive frame protection in winter, or, better still, if they could be accorded positions in the cool conservatory, planted out. Those requiring protection are *M. ciliata*, a handsome plant almost deciduous in winter, and producing hairy leaves, and white and rose flowers in spring time. On a level with this as to hardiness stands *M. Stracheyi*, an Himalayan species, of which also there is a white variety, the flowers of the type being pinkish externally, and is now in flower (February 27th). Another nearly allied kind is *M. Milesi*, also somewhat tender and inclined to deciduous. This last has rose and white flowers, and being somewhat dwarfer than the rest should be grown in pots. These deciduous, or semi-deciduous kinds—which, by the way, behave in a greater or less degree according to the circumstances under which they are grown, are, so far as the individual flowers are concerned, exceedingly handsome, and well deserving a place in all gardens where good hardy plants receive the attention they deserve. The more robust species are specially suited for the large rockery in bold masses, so placed that their stout leathery leaves may clothe the sides of projecting ledges of the rock.

Those named above, while including the leading species and varieties as generally known to cultivators, by no means exhaust the list of these valuable spring flowers, for already the hybridist has been at work, and his patience and perseverance rewarded by a rich and varied series of these plants; and although I am not as yet able to speak of their merits from personal observation, I have

reason to believe they include some very decided improvement in both colour and size of truss, colours too we do not possess in the older kinds. For these new and improved forms we are indebted to Mr. Thos. Smith of Newry, who no doubt will continue to improve this charming group. Happily, too, Mr. Smith is to be congratulated upon his choice of the parents of these hybrids—viz., *M. cordifolia* and *M. purpurascens*, both being of perfect hardiness and of vigorous constitution generally, a fact which may tend to render their offspring invaluable to the future generations of the gardening community.—J. H. E.

IRIS SINDJARENSIS.

AN addition to the early flowering Irises of dwarf habit attracted some attention at a recent meeting of the Royal Horticultural Society,



FIG. 57.—IRIS SINDJARENSIS.

when the Floral Committee granted Messrs. Barr & Son an award of merit for the plant. The flowers are of moderate size, and though less showy than the favourite early *Iris reticulata*, the delicate lavender blue tint is very pleasing. A most distinct character is afforded by the leaves, which are broad, closely set on the stem, recurving, and of a glaucous tint. The moderate size of the plant adapts it for culture in pots, and out of doors it would need a somewhat warm and sheltered situation to ensure its success.

CYPERUS DISTANS.

THE plant known in the market by this name is the most useful of all the *Cyperus*, and for various decorative purposes is surpassed by few plants. It is suitable either for the table, group-

ing, or any other form of decoration, while in the conservatory it is light, graceful and effective when associated with flowering plants. It rarely exceeds 18 inches in height, and plants in 5-inch pots will carry from four to eight of their spreading spikelets. It will last in presentable condition in rooms for two months provided the plants have not been pushed forward in brisk heat and are taken into the rooms as soon as the flowers show. In a light position the flowers even will there continue to come forward up to a certain stage.

Plants can be raised by division and seed, the latter being decidedly the quickest method, and better specimens are obtained than by division. I have never seen seeds offered for sale, though they are produced freely. The plants for seed bearing should be placed in a light sunny position in the greenhouse or outside during the summer; early in the year in an intermediate temperature. Directly the seeds are observed to fall the spikelet should be cut, and the others as they become ready. If they are sown at once disappointment will follow, for they are certain to decay. They must be thoroughly dried on a shelf or in the sun where they will ripen. After they reach this stage they may be sown, or can be stored away until spring. The seeds are small, brown and hard, and are two or three weeks in germinating. They can be sown with the husks attached, as these soon decay in the soil—when sown in this manner they are a little longer before the seedlings appear. The seed may be sown in pots or pans in fine soil and should be lightly covered. A good watering is necessary, and the soil must be kept moist, as the seeds being very hard they will otherwise lie for a long time before they commence growing. The pans may be placed in any warm moist atmosphere where the temperature is about 60°. Place them in the greenhouse or any position under glass, but the warmer the house the greater their progress in their early stages. The present is a good time for sowing seed, and the plants so raised will be in condition for decorative purposes from the end of November until the close of March. To have plants for decoration all the year sowings should be made now, again in May and during September.

When the plants are large enough they can be pricked off 2 inches apart into boxes containing a compost of fine loam and leaf mould in equal proportions, with a liberal addition of sand. For a fortnight afterwards they may remain in the temperature in which they have been raised, and should then be removed to a temperature 5° to 10° lower. In this position they will grow sturdily, and can remain until they are becoming crowded, when they may be placed singly into 60's (3-inch pots). A pit where the temperature is about 50° will be suitable if they are near the glass and standing on a moisture-holding base. The pit or house selected for them must be kept close until they have commenced fresh root activity, then air may be gradually admitted and increased daily when the weather is fine, free ventilation being necessary to keep them sturdy. By the time they fill these pots with roots artificial heat will be no longer needed, and the plants will have commenced to push up growth from the base. They should not be allowed to remain in the small pots long enough to become unduly crowded with roots, or they will be checked and fail to make satisfactory progress.

When ready place them into 5-inch pots, one "crock" at the base being ample. This time the soil may consist of two parts loam to one of leaf mould, one-seventh of decayed manure, and sufficient sand to render the whole porous. Press the soil firmly into the pots, and stand the plants in cold frames. In potting be careful not to break their foliage. Keep them close again for about a fortnight, and then gradually harden to cool airy treatment, closing the frames only at night. When they are once well established and growing freely they will be better than in the frames, but not before the end of June. Stand them on a bed of ashes, and be careful not to crowd them.

During August those that are needed for throwing up early should be selected from amongst the others, and will comprise the strongest and best plants. These should be placed in frames or in the greenhouse, where the ventilators can be closed at night, or partially so, to bring them on a little faster than those outside. No attempt, however, must be made to hurry them. In the following months, when the nights begin to be cold, the whole of the plants should be returned to frames where they can have protection at night when the temperature falls low. By the middle of October place them where they can be protected from frost. It is a good plan to sort them at this stage, placing them in different positions where the temperature during cold nights will range from 50° to 40°. Keep some in a temperature intermediate between the two. The object is to bring them forward gradually. If they are kept close the foliage is drawn weakly and breaks and falls about, while the spikelets that are thrown up are weak and poor in comparison with those allowed to grow and develop steadily from the first to the last. It is much better to keep them advancing slowly

than to hurry them and then try to retard them. If they are removed direct from heat to a cool house, their appearance will soon be destroyed by the foliage becoming spotted. The same takes place when they are placed in rooms from brisk heat; in fact, plants that have been hurried are next to useless for such positions.

Plants that have done duty and faded need not be thrown out, although this is the best plan, as they are so easily raised from seed. They can be trimmed, leaving all the foliage that is good, cutting the spikes away, and if placed in heat they will soon throw up again from the base. They will do so twice during the next season, but if kept in the same pots the spikelets will be weaker each time, and the foliage will be defective at the base. If they are retained when growth is observed issuing from the base they should be transferred into a size larger pot.

All that is necessary to say about the watering is that from the time the seed is sown the soil should be kept moist. The syringe may be freely used through their various stages, especially during the summer, because they are liable to attacks of red spider. If they are liberally watered and freely syringed this pest will give no trouble. When they are housed avoid placing them on a dry stage. All the feeding necessary is soot water in a clear state.—NORTHERNER.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

THE Executive Committee of the above Association held a meeting in the Horticultural Club room, Hotel Windsor, on May 1st, T. Francis Rivers, Esq, in the chair. A number of members having been elected, the Hon. Secretary announced that Mr. Shirley Hibberd had consented to give a paper on the Origin of the Cultivated Strawberry at the June meeting. The proposed report on the Present Condition and Prospects of Fruit Culture was discussed at some length, and letters were read approving of the scheme. The Duke of Bedford sent a cheque for £25, and Earl Fortescue wrote as follows:—"I heartily wish you success in your work. I have long been of opinion that fruit culture may be largely extended in Great Britain and Ireland with advantage to the owners and occupiers of land and to the general public. Your Association has been rendering a real public service both by directing public attention to fruit culture for profit in this country, and by helping to dispel the erroneous idea too freely circulated respecting the enormous returns obtainable from a small capital employed in fruit cultivation. Your report truly observes that much harm has been done by ill-informed advisers, for fruit-growing cannot be made to pay a fair profit without practical knowledge of the work, starting with a carefully considered scheme, and sound judgment in carrying it out." A sub-committee was appointed to prepare a scheme to deal with the matter.

Mr. L. Castle submitted a note upon Paris green as an insecticide for special application to fruit trees, and described some experiments. The strongest mixture of this poisonous substance appeared to have no direct effect upon caterpillars, and it is only when it is lodged on the surface of the leaf and consumed by them that it becomes destructive. It had little or no effect upon the leaves as tried, and except when the mixture is not properly stirred there seems little danger in this respect. Experiments were also tried upon plants in pots to ascertain if any ill effect was produced by the Paris green passing through the soil to the roots; but the plants were quite uninjured, and being insoluble it is not taken up by the roots. It was mentioned that Miss Ormerod had kindly sent much information upon the matter, including her recent Report upon Injurious Insects. A large fruit grower also wrote as follows:—"We have a plentiful crop of caterpillars; we are, however, vigorously attacking them with Paris green, London purple, and quassia. We can hardly determine yet which will answer best, but the quassia appears to be quickest in its action, as it kills by contact, but with the other two you have to wait until they have consumed the poison."

CLASSIFICATION OF PICOTEES.

(Continued from page 364.)

MR. DODWELL TO MR. HORNER.

I AM greatly obliged by your most interesting letter of the 6th; especially for the permission you gave me of using it in the interests of our common brotherhood, and as I think none of your words should be lost, I propose to ask the editors to give them to the public, with the few remarks I hope may follow. I am gratified to note your acceptance of the proposed recasting of the Picotee section by marginal breadth, and I humbly trust I may truthfully aver I hold with you in its entirety the same floricultural faith. We stand one and indivisible on the same immutable law, so ably expounded by Mr. Jeans, and, happily, no longer a virtually buried book. You do me only justice in assuming I have no fear of the clap-trap of our critics. I would bend neither to the raging "of the heathen," nor to the sometime vain imaginings of our own "people." We differ, I proudly believe, upon no cardinal point. If we seem to diverge it is not upon principle, but upon questions of expedient practice, and even upon these questions I believe wherever we could bring them to practical test we shall be found in substantial agreement. Fifty years ago, before the growers of the north and of the south had a practical knowledge of each other, there was endless controversy upon the asserted difference of the flowers and the estimates of

florists in the respective districts. Well, the trial exhibitions of 1850 dissipated the illusion. Come then to our next meeting of August 5th, and I think the difficulties you anticipate in a "compôte" of colours would be found to be of small relative account; less by far at least than those existing in the present system, and which threaten indefinite extension. What justification can be found for laws which shut out from class showing a bizarre-edged Picotee? Form a class, possibly you may say. But this cannot be relied upon to remedy the evil. It extends a system already practically unmanageable for the effective presentation of an exhibition to the outside public; of only initial value to the florist himself; and very unequal in its incidence of competition. Let me not be thought to undervalue the single bloom. All floral knowledge and floral enjoyment must begin with it, and my estimate of its importance may be inferred when I say that at the earliest time I could make occasion—the exhibitions of the Midland Horticultural Society at Derby in the forties—I gave a prize for the best Carnation, and similarly for the best Picotee, selected from the whole exhibition, and it was at my instance the prizes for the premier Carnation and the premier Picotee became part of the schedule of the National. But in the multiplication of the classes I have noted great evil. Of the seeming difference in our views of the self and fancy classes I need scarcely speak. Of course we recognise the fact that both self and fancy occupy relatively a lower place than the bizarre and flake and Picotee. But I feel sure we shall equally agree the life of the Carnation cannot be fully illustrated without their recognition. And though, for all the higher enjoyment of the florists, the self and the fancy stand on the lower level, yet for some purposes, mainly those of import to the outside public, they have a very definite and important use. And this brings me to consider the question, What should be our attitude to the general public? Of course we give no regard to the caprices or excesses of mere fashion. They come and go, and are not. But I think with our good friend Hibberd, as expressed at our luncheon table, "Florists have an important duty to see that the public have the best in their several classes," therefore we lose no dignity if, for the nonce, we step down from our higher level to consider these lesser things, and as we are firm believers in the importance of comparison, these lesser things fitly occupy a place upon our exhibition tables. I have no thought of restricting the "legitimate" preferences of taste. Let the judge, if he thinks well, prefer his purple, his pink, his rose, or his red; well defined and well understood intrinsic merits being equal, his choice may well come in. But I do not anticipate practical difficulty in this. We find no difficulty in determining the premier flower from the whole exhibition, whether red, or rose, or purple, and I should be surprised to find any difficulty in deciding the merit respectively of a broad-edged purple, or rose, or red. On the other hand, an extension of the classes is, in the case of the "Union" at least, impossible. We haven't space. But if we had, I should be as stiffly opposed to such a solution of the difficulty. We now have eight divisions of hues or tints of colours. Last year we had six only. But it is said in the rose, or salmon, or scarlet-edge Mrs. Sharp is distinct from Mrs. Payne, from Edith D'Ombraïn or Royal Visit, so a separate class is set up. The distinctiveness is unquestionable, but if distinctiveness of hue is to govern, what reason can prevent the separating into classes of the imperial purple of Amy Robsart and the soft lilac-purple of Mrs. Chancellor? And so for the marone-reds and the cherry-reds? Where would it end? And if three sub-divisions be sufficient respectively for bizarres and flakes, why should not a similar number suffice for the Picotee? This is no new subject to me. It has filled many an hour of thought in many a year of my life, and I embodied, generally speaking, its outcome in the note attached to the yellow-ground special prizess, "the judges are instructed to award these prizes to the *best and most effective flowers.*" That instruction was the best I knew how to give. What could call more alike upon exhibitors and judges to make a wise and intelligent selection? And I desire, above all things, at all times to stimulate and be stimulated to the exercise of intelligence. I know no better way whereby I can adequately express my sense of the great favour and sympathy which has been given me in these my later days. Hoping, dear Mr. Horner, that you will be with us at our next meeting, and that there may be no gap in our circle of friends, with every kindly wish, I am, faithfully yours,—E. S. DODWELL.

P.S.—There is yet one other point—the question of £ s. d. Extension of classes means, of course, extension of prizes. Who shall provide the means? This is a subject which ought to be borne in mind, and, above all, we should be careful that the strong should not be given an advantage over the weak. I do not think you have given full weight to this point, nor to the point that florists are bound to present their exhibitions effectively to the public. Again and again in my experience we have been overwhelmed with the number of single blooms, and the litter and confusion incident to their production. To put exhibitors upon an equality, it should be one man one flower in each class. As regards means, I think we have gone to the utmost limit of necessity, and if instead of very narrow I had unlimited means, I should not willingly offer more. Proposing to send our correspondence to the gardening papers, I return herewith your own note, so that if you desire to add thereto you may have the means. When read, will you kindly return to me with my letter also, for I am really unable to copy it?—E. S. D.

MR. HORNER TO MR. DODWELL.

MANY thanks for the generous advantage of seeing your reply to my paper before publishing it. I do not know that I have much fresh to say,

except that wherein we may differ, it will not be in any unkindly way. You have had but one lifelong floral attachment, and I have many; and I do not, therefore, seek to pit my acquaintance with the Picotee against your mature and concentrated intimacy with it. I quite agree with you in your desire to cheer up the smaller grower, though I would hardly put it "as against the larger." We should encourage the one, and not discourage the other. It would be a pity that the small grower should be educated and scheduled to look upon the big grower as his natural enemy; or that the big grower should be ruled down and outclassed into feeling that he has no friends, and may be stamped on. The large grower, who with a large collection has also a largeness of care, anxiety, and expense, naturally looks to reaping as he has sown, in a larger recognition and reward than the smaller grower can reasonably expect with his lesser outlay of time and labour. In collections, or "pan" showing, the small grower is abundantly fortified. He may rally into the big man's lines by showing upwards into any class above his mark for which he can produce the flowers; while the big man may not show down by crossing the small man's frontier. But in single bloom classes, perfectly open ground, both small and great men meet together, generally without fear, certainly without favour. I do not see how you can handicap the large grower here without being unfair to him. Handicap both, and let neither show, in any class for single blooms, more than his best two flowers. That would do away with the merciless imposition on the judges, and the great absorption of space that must come of exhibitors pushing all their spare flowers into the singles because "they may win a shilling." But however you put it, the larger grower must have more power of choice, and in any arrangement this will tell, and I submit, ought to. If you have, in single blooms of Picotees, the flowers classed solely by depth of edge; one huge mixed class of heavies, the same of mediums, and the like of lights, here will the large grower come down strongly, with no restriction as to edge colour, so long as the depth of edge is there. If however, you maintain, in heavy, light, and medium edges, the well-established colour divisions, it may be that the big man shall here and there find himself spent or weak, and the small man bowl him over. I think the general effect of the single bloom classes, as now displayed, is very beautiful in the play of purple, red, and rose shades in those respective classes, while the powers of variation are seen at a glance in close comparison, which could hardly be in a motley crowd of all edges. Judging mixed edges in collections or divisions by depth of edge, and selecting the winners, is scarcely, I think, analogous to the task of finding the premier flower of a whole exhibition. The premier lies within narrow bounds. It cannot decently be outside the winning stands, or be 'ow the first prize flower in single-bloom classes. It is not likely to shine, the so e jewel in some rejected stand. Not alike easy, it seems to me, would be the filling of a long graduated prize list by assortment from materials mingled in all their mixed multitudes of edge colours. "There is no trust like trial;" but so far as I dare prophesy before I know, I think it would be more workable to keep the established classes by colour of edge, with sections in each for heavy, light, and medium, than to merge all colours upon chance of a new one breaking out, or because in the rose-edged some are rose scarlet and some salmon rose. I think our attitude towards the general public (as florists, in the peculiar sense in which we are peculiar!) is to show a florist flower in—and only in—its highest florist types. I think that we have no need to exhibit our mistakes, and say, like Beau Brummel's valet, when met returning from his master's dressing-room with an armful of crumpled cravats over his arm, "These are some of our failures!" The "life" of the Carnation, Auricula, Tulip—any florist flower in other than its florist forms—is surely a little beyond the range of our florist societies, which exist for the one definite aim of developing the flower in what are known as its florist types. I like a thing true to name, and a florist society is for the improvement of florist flowers as such. I cordially agree with you in agreeing with our friend Hibberd's remark that "Florists have an important duty to see that the public have the best in their several classes." But not out of them! Scarcely, to have to admit to a stranger of "the public" who may admire a run Carnation, or a nondescript prettiness in "fancies;"—Ah, yes! but that is not relatively a flower of a high standard in this scale of beauty. This is rather the "doing" our duty in the shady sense of getting out of it. Again, as to your comparison between the three classes of bizarre and flake Carnations, and the six of edged Picotees—with the suggestion why there should not be only three of each—I think the edge in colour and depth marks off the Picotee as distinctly as the stripes distinguish the Carnation; and that "to lump" the edge colours in Picotees would be analogous to lumping the Carnation colours into simply bizarres and flakes. It would be the easier perhaps, for the eye that sees dimly the difference between the crimson and the pink and purple bizarre, but it would not interpret the flower fully. So if we had Picotees classed only by depth of edge, the florist would miss all the delicate distinctiveness to which he is accustomed, and feel the calculation too rough and ready. Well! you must not take me for an autocrat on the Carnation or any flower. I only give you my opinion freely as you ask it. You may say of me playfully, "Ah! rather thin of petals on the Picotee question!" As playfully let me gently whisper, "Don't burst your pod!"—F. D. HORNER.

MR. DODWELL TO MR. HORNER.

I WILL add a few words only in notice of your letter of the 26th. You have done, and admirably done, that I asked for when I invited comments germane to my proposition of March 3rd. There is, I think, a little misunderstanding as to my feeling for the smaller as contrasted

with the larger grower. Certainly, I desire in nothing to handicap the larger for the benefit of the smaller; I seek, as throughout our exhibitions, to establish the nearest practical approach to equality by compelling the exhibitor to select, not contribute, in gross. Your suggestions to limit the number the exhibitor may produce in each class—which had previously reached me from more than one quarter, and which, I think, should be adopted—goes a long way towards meeting the difficulty, and will, I think, be most beneficial in practice. As regards the colours you do not touch upon the extension of the classes already adopted by the National, or quite sympathise with me possibly in my estimate of the effect such extensions may have. Practically I do not think a difficulty would be found to attend a competition of mixed colours. But if it be strongly urged the competition should not be of all colours and hues of colours let us at least try to find some solid ground for division, and separate only by primary colours, say of red and its hues, rose-pink, salmon, salmon-pink, and salmon-scarlet; purple and its hues to lilac. This would give us two divisions, including every colour at present developed in the white ground Picotee, and all, I think, likely to be developed. Be that as it may, it would give us a sure starting point at once, which the present system does not. I regret our divergence of views as to the selfs and fancies. But I cannot consent to look upon these sections as our "failures." Interpreting our laws in the strictest possible sense, I hold they are well within our lines, so I think to exclude would be a sin of the gravest magnitude. Granting we are specialists, and our shows should be special, could we illustrate the life of the Carnation without these sections? Could I, because I thought there was more variety, more brilliance, more power in the bizarre, be justified in rejecting the less gifted self or the motley, whilst these latter for certain purposes of grouping or decorative effect beyond dispute excel the former? Personally of course I might, and no man, whatever he might think of my caprice, could rightly impose his law upon me. But in my character as chief servant to the Carnation and Picotee Union, what then? We have four hundred supporters at this time—to be five hundred surely before the year is out. Fifty of our friends come into line with you and I. Seven times fifty admire the Carnation, and seek its use from a slightly different standpoint. Can we ignore their requirements? Ah, no. Because we are virtuous we are not to forbid the innocent "cakes and ale"—veritable enjoyments to friends with tastes and requirements slightly varying from ours. Again repeating my hope you will be with us on August 5th. and cordially reciprocating all your kindly thought.—E. S. DODWELL.



EVENTS OF THE WEEK.—The Crystal Palace summer Show will be held on Saturday, May 10th; the Royal Horticultural Society's Fruit, Floral, and Orchid Committees will meet on Tuesday, May 13th, at the Drill Hall, James Street, Westminster; the usual monthly Dinner and Conversation of the Horticultural Club will also take place on Tuesday, at 6 P.M., in the Hotel Windsor. The subject for discussion will be "Common Sense and Common Non-sense in the Naming of Plants," to be opened by Mr. Shirley Hibberd. The Royal Botanic Society's first summer Show of the year will be held on Wednesday, May 14th, in the Regent's Park Gardens.

— **THE WEATHER IN THE SOUTH** has been seasonable. The rain that has fallen on several days has proved most acceptable in hastening the growth of Peas and other vegetables. Gooseberries are swelling rapidly, and some of the earliest are already in the market.

— **THE WEATHER IN THE NORTH.**—April 28th-5th May. On the morning of the 28th ult. 1½° of frost was registered. Since then the temperature day and night has been high, only three times under 40°; last night's min., 49°. With few dull intervals the days have been bright and warm, coldish easterly winds making some of the evenings unpleasant. Vegetation has made a great advance during the week, and the country looks beautiful. Promise of abundant Hawthorn blossom in contrast to last year.—B. D.

— **NEW ZEALAND INTERNATIONAL EXHIBITION, 1890.**—The following first class awards have been made to Messrs. Sutton & Sons, Reading, at the above Exhibition;—Agricultural products, models of vegetables from Nature; models of agricultural roots from Nature, and a collective exhibit, special first class awards in this class being also adjudged to Messrs. Hurst & Sons, London, and Messrs. Arthur Yates and Co., Manchester.

— **THE SHROPSHIRE HORTICULTURAL SOCIETY.**—The annual great Exhibition of this Society will take place in the Quarry Grounds, Shrewsbury in August next, when about £400 is offered in prizes. From the balance-sheet of last year we extract the following items:—Receipts—Subscriptions, £416 16s. 6d.; taken at gates, £1206 17s.; tickets sold by Messrs. Admitt and Naunton, Hon. Secs., £525; from other sources, £179 7s. 6d.; the total income of the Society for the year, £2480. Enormous expenses attend the outdoor entertainments, which, in conjunction with the splendid display of plants and flowers, and fruit and vegetables especially, bring the visitors from far as well as the surrounding districts.

— **CLIMBING NIPHETOS ROSE.**—Will any rosarians oblige by giving their experience of the growth of the Rose sent out as Climbing Niphetos?—M.

— **GARDENING APPOINTMENT.**—Mr. George Maycock, for the last three years general foreman at St. Anne's Gardens, Clontarf, Dublin, has been engaged as gardener to E. J. Walker, Esq., Lead-works House, Chester.

— **CHANGE OF ADDRESS.**—Mr. G. Shrewsbury has removed from 122, Moorgate Street, E.C., to larger and more convenient premises at 36, Grays Inn Road (Holborn end), W.C., where all communications should now be addressed.

— **CATERPILLARS AND PARIS GREEN.**—I am much interested in this subject, and am making inquiries amongst Kent fruit growers, about which I hope to report you shortly, but the east winds a fortnight ago killed hereabout (Gravesend) thousands of juvenile caterpillars.—J. R. S. C.

— **THE PAST MONTH** here has been noted for the small amount of RAINFALL, total amount for the whole month only being 0.77, greatest amount in twenty-four hours on the 16th being 0.20, minimum amount in twenty-four hours on the 7th being 0.03, being the driest month since the spring of 1888. Amount registered during April, 1889, being 2.16; much in excess of past month. The month began with very sharp frost, and nearly every night more or less frost has been registered.—E. WALLIS, *The Gardens, Hamels Park, Buntingford, Herts.*

— **HINTS ON VEGETABLE AND FRUIT FARMING.**—Under the above title Mr. Charles Whitehead has compressed much information in a manual of forty-two well printed pages. The matter originally appeared in the Journal of the Royal Agricultural Society, and the Council of the Society have decided to republish it in the present cheap and handy form. It is revised so as to bring the facts and statistics to a late date. Most kinds of useful vegetables and hardy fruits are concisely treated, though many details of culture are of necessity omitted, as are some crops usually grown in market gardens; and it is a little singular that the most profitable of all is overlooked—Mushrooms. On the whole it may be described as a useful epitome of the culture of the crops that are included in its pages. The manual is published by Mr. John Murray, Albemarle Street, London.

— **DEATH OF MR. JAMES CHEETHAM.**—The death of this old florist took place quite recently at Rochdale at an advanced age, and after a long floricultural career. James Cheetham's name will long be associated with Lancashire Hero Auricula, although he was not the raiser of it. It appeared first in 1846, raised by old Robin Lancashire, and in all probability originally named Lancashire's Hero. When first shown at Rochdale in 1846 it was placed second to a flower inferior to it in character, Grimes' Privateer. The Rev. F. D. Horner, in one of his pleasant papers on the Auricula, records that old Robin had then eight or ten plants of his magnificent grey, and in his great grief that it should be placed second to Privateer, hastily sold all for a trifling amount. Then repenting, he offered a great deal more to get them back, but could not have them. From their first purchaser they passed to Mr. James Cheetham, by whom it was eventually put into commerce. "But it is truly Lancashire's Hero, and no name but that of Robin Lancashire should be associated with this flower." Like many other light-mealed grey edges it has the power of blooming in a green edged form, and that generally occurs either on a truss from a young plant, or one formed very early on an old one. At the recent Exhibition of Auriculas at the Royal Aquarium, Hero was well shown in its green edged character, but whether grey or green, it is always a striking and valuable flower. Latterly James Cheetham cultivated Tulips, Auriculas, and a few other florists' flowers, and I think I am correct in stating that for a time he had charge of the fine collection in the possession of Mr. C. M. Royds of Rochdale.—R. D.

— DEATH OF MR. JAMES FLOOD.—Many will learn with surprise that Mr. James Flood of London died suddenly on Sunday last, aged fifty-three. He had for many years been a frequent attendant at horticultural shows and meetings in the metropolis, with some of the principal in the provinces, and had a wide circle of friends. He was for a considerable time engaged in the Royal Botanic Society's Gardens, Regent's Park, as assistant to Mr. R. Marnock.

— MESSRS. JAMES CARTER & Co. suggest that the following record of QUICK VEGETATION may be of general interest:—"On April 17th last was sown seed of Cactus *Dahlia Juarezi*, in three days nearly every seed appeared to have grown, and the plants were well through the ground; they were ready to be, and were, pricked off on April 28th, and yesterday (May 5th) were upwards of 2 inches high."

— ROYAL NATIONAL TULIP SOCIETY.—The usual meeting of the growers and exhibitors of the Tulip was held in Manchester on the 30th of May, and a comparison of the different reports as to the progress and promise of the Tulip beds led to the annual Exhibition being fixed for Wednesday, May 28th, to take place as usual in the Botanical Gardens, Manchester, on the last day of the great Whitsun Show. At present Tulips promise to be early. The Rev. F. D. Horner reports that they are very early with him, both out of doors and in the Tulip house, and writing on the 2nd of May he states:—"I have a dozen or two blooms standing open to-day. At this rate of speed my blooms will not last for the National, or later than the third week in May." It will be seen from the above that the fixture is the fourth week in May. The exhibitors at the National Show have been thinned by the death of Mr. Alderman Daniel Woolley of Stockport, on Saturday evening last, the cause of death being pneumonia. He was a seedsman and druggist in the Market Place, and had strong floricultural tastes, but made the Tulip his specialty; and when the season suited his flowers he was generally successful with them. He will be much missed in the Tulip Shows round Stockport.

— OUTDOOR MUSHROOM CULTURE.—A striking example of how easy it is to grow Mushrooms out of doors is now to be seen in Mr. James Hodges' garden at King's Heath, Birmingham. Two beds, each about 12 feet long and 6 feet wide, were made up out of doors in January last, the manure prepared in the usual way, and when made firm were not more than 18 inches high, gradually sloping to the north, Mr. Hughes always mixes a little open and sandy soil with the manure, as it assists in regulating the heat more, preventing too great a heat, and maintaining it longer. In spawning, good sized lumps of spawn are inserted from 9 to 10 inches apart, and the soil is not placed over the spawn until the temperature of the manure has become regular, and what is required. After that the surface is kept moderately moist. The only covering to these beds is a thin layer of long straw and one layer of close Russian garden mats. Cutting commenced at the beginning of April, and a good supply of large fleshy Mushrooms have already been gathered, and judging from what are just now peeping through, and the network of mycelium in the beds, a big crop will continue. There are also out of doors quite a couple of dozen small cone-shaped heaps of manure, spawned and covered with litter, and these are just coming into bearing. It is altogether another instance of Mushroom-growing made easy, and Mr. Hodges obtained in great part the idea of how to do so from reading Mr. Wright's excellent treatise, "Mushrooms for the Million."—D. S. H.

— SUMACH AS A MATERIAL FOR PAPER PULP.—Allow me to direct attention to the Staghorn Sumach (*Rhus typhina*), and the Smooth Sumach (*R. glabra*), as pulp-producing shrubs for the manufacture of paper. The Sumach tree or shrub approaches to the herbaceous tribes in the glandular construction of its rind and in its pith, and the fibre of its shoots is whiter and lighter than Poplar. As it is readily propagated from shoots or sprouts it may be cultivated with profit on rugged and rocky grounds. The first year's shoots should be cut for pulp-making before they begin to wither, when the leaves are full of sap, and especially before frost. They should be stripped of their leaves, which after being withered in the sun are spread upon shelves or racks to dry in a shaded but airy place for a month, and in damp weather longer, before going to market. Sumach sells, after grinding, at from 40 dollars to 50 dollars per ton. The rind should be scraped off clean from the shoots immediately after stripping them of their leaves, and dried in a similar manner, and the shoots should be dried and stored away to be sold to the pulp miller. The leaves and the rind of the Sumach contain a tanning and dyeing material having the same properties as galls, its chief consumption being in cotton dyeing. The

roots of both of these varieties of Sumach have hitherto been considered troublesome in sending up suckers, and the prevalence of common or smooth Sumach was evidence that the occupant was a poor and thriftless farmer. The velvety crimson berries of the smooth Sumach are also used in dyeing. They are astringent and of an agreeable acid taste, for which reason they are sometimes used as a substitute for lemon juice, for various purposes in domestic economy and medicine, and to turn cider into vinegar. The acid is the bi-malate of lime.—A. K. (in *Toronto Globe*).

— THE WEATHER LAST MONTH.—April was a dry month, but with only very few bright days, and severe frosts on 1st, 2nd, 4th, 5th, 11th, and 12th. Wind was eastward sixteen days. We had lightning on the 7th at night. Total rainfall was 0.82 inch, which fell on eighteen days, and the greatest amount in twenty-four hours was 0.15 on the 15th. Barometer—highest, 30.38 at 9 A.M., on 1st; lowest, 29.35 at noon on 25th. Highest shade temperature, 65° on 30th; lowest, 21° on 2nd; lowest on grass, 20° on 2nd, 5th, and 11th. Trees coming into leaf fast after the 20th, when the wind changed to west at 12 noon, after a long time in east and north-east. Horse Chestnuts almost in full leaf at the end of the month. Swallows arrived on the 30th, nightingales on the 24th. The severe frosts during the month have cut the early fruit blossoms here very much, especially Peaches and Plums on walls. The garden spring ran 23 gallons per minute on 30th.—W. H. DIVERS, *Ketton Hall Gardens, Stamford*.

— THE TOTAL RAINFALL AT CUCKFIELD, MID-SUSSEX, for the past month was 2.89 inches, being 1.14 inch above the average. The heaviest fall was 0.75 inch on the 25th. Rain fell on fifteen days. The highest shade temperature was 64° on the 15th and 30th, the lowest 30° on 12th and 13th. Mean maximum 52.2°, mean minimum 37°, mean temperature 44.6, partial shade reading 2° above the average. A heavy thunderstorm occurred here at noon on April 26th, accompanied with a destructive hailstorm, which has done much damage to Pears in bloom and to all tender foliage. It came down for half an hour, and laid on the eaves of hothouses and in sheltered corners for several hours. Result in rain, 0.54 inch. Fortunately it was quite local, not extending westward to the parish church, nor to Hayward's Heath southward. Apples look very promising, and not forward enough to be damaged. Vegetation about eight days in advance of last year.—R. I.

— READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—A large and representative meeting of this Association was held on Monday at the British Workman. This was the closing meeting of the spring session, and proved a good finish to what has been a very successful series of meetings. The President, W. I. Palmer, Esq., J.P., presided, and in the course of his remarks referred to the Association as a school of gardening of great value to the members. The subject for the evening, "The Gloxinia," was introduced and ably dealt with by Mr. Jas. Martin (Messrs. Sutton & Sons' skilful cultivator). Having referred to the introduction of *Gloxinia maculata* in 1739 from South America, Mr. Martin traced the progress made up to the present time, the beautiful varieties now in cultivation being worthy of a place in every collection of plants. He clearly explained the details of culture requisite to achieve the best results, and exhibited several varieties of these lovely flowers, which were notable for their large size and rich and varied colours. The display of *Gloxinias* annually produced in Messrs. Sutton & Sons' nursery at Reading is of a high order of merit. Among the exhibits on this occasion was a magnificent specimen of *Vanda tricolor* profusely flowered. This was exhibited by Mr. Pound, gardener to G. May, Esq., Caversham, who also exhibited some very large Laxton's Noble Strawberries. Two good examples of *O. ontoglossum Peseatorei* were shown by Mr. Dockerill, gardener to G. W. Palmer, Esq. Heartly votes of thanks to the President and the lecturer brought a very enjoyable evening to a close.

— EXOTIC PLANTS IN CORNWALL.—In a little pamphlet entitled "Cornwall as a Winter Resort" (W. Brendon & Sons, George Street, Plymouth), the following passage occurs relative to the plants which succeed in the open air:—"The latest and fullest account of the exotic plants of the West of Cornwall will, however, be found in a paper by Mr. Upeher, which obtained the medal of the Falmouth Naturalist Society at the Polytechnic Exhibition in September, 1889. The localities chiefly cited are Tresco, Seilly—where, judging by its patent results, the climate, save for the absence of excessive summer heats, may fairly be described as sub-tropical—the neighbourhoods of Penzance, Falmouth, and Penryn. *Aralias* are perfectly hardy, and

range up to 25 feet high, and 10 to 15 feet through, as at Tresco, Tremough (Penryn), and Redruth. Acacias reach 30 feet at Pendrea—the seat of Mr. W. Bolitho—and Redruth. *Aloysia citriodora* occurs 8 feet high, and with stems 4 inches through. Aloes and Agaves thrive well in many localities, though Tresco has the finest collection. They thrive almost everywhere, but flower with great beauty at spots like Penzance and Falmouth, reaching over 20 feet high. *A. candelabrum* flowered at Falmouth for the first time in England, and reached a height of 24 feet. *Aster argophyllus*—the Australian Musk—has grown 20 feet high at Rosehill, Falmouth. The Norfolk Island Pine not only grows but flourishes at Tresco. The Bamboos do well in such localities as Tresco and Penzance. *Bambusa mitis* grows finely at Tresco; *B. calcata* is dense in the garden of Mr. T. B. Bolitho, M.P., Penzance. The Cannas, too, give a 'most wonderful group,' 12 yards round, at Trewidden; and with slight protection the most tender can be successfully grown. *Clianthus puniceus* often flourishes in exposed situations. At Tredarvah the stem of one is 8 inches round. *Chamærops*, in three varieties, reaches 10 feet in height at Polwithen; and *Desfontainea spinosa* 7 feet at Falmouth. *Dicksonias* flourish exceedingly; *antarctica* has grown for twenty years out of doors, and *squarrosa*, brought from a greenhouse in Guernsey, has sprung up 9 feet high in the open at Penzance. *Dracænas* thrive so well that there is actually a native hybrid—*Scillonensis*—originally raised at Tresco. The *Eucalypti* do well. At Penmere, Falmouth, there is one over 60 feet high, producing seed annually. *Escallonia macrantha* is so luxuriant as to be almost a weed; and *Fuchsias* grow to bushes 10 to 15 feet in height, and in various parts of West Cornwall literally form hedges, which flower most lavishly. *Hydrangeas* flourish everywhere in the county, and at Tresco the woods are full of them, ranging up to 10 feet high. The *Lapageria rosea* has clothed a wall of Trewidden, Penzance, while the white variety grows magnificently at Carhayes. Another tender exotic which flourishes exceptionally in Cornwall is the *Melianthus* major. The Date Palm grows at Tresco. *Camellias* and *Rhododendrons* luxuriate in many localities. *Trevarrick*, St. Austell, has long been noted for the former; and the display of the latter at Tremough, Penryn, is unequalled. The *Thujas* at Penjerrick, Falmouth, are the finest in the kingdom; *Yuccas* are thoroughly hardy almost everywhere, and as to *Veronicas* they grow to trees 15 feet in height, while *Pelargoniums* cover the fronts of houses at Penzance and Scilly, and flowering *Myrtles* abound."

— ANGLICISED BOTANICAL TERMS.—In one of the Bombay Natural History Society's papers, Mr. G. Carstensen, Superintendent of the Victoria Gardens, Bombay, makes a bold suggestion for facilitating the study of botany in India. His experience, he says, has taught him that the study of botany is far more popular in the northern countries of the European Continent than in British possessions, and he cannot help thinking that this fact may be clearly attributed to the difference in the botanical terminology. While the terms used in English works on botany are too frequently quite unintelligible for the layman, because they are in most cases Anglicised Latin words, the terms used by German and Danish authors are generally easily comprehended, because they are translated into the mother language, refer to objects of daily life, or are derived from the language itself. He therefore proposes that the Botanical Committee of the Bombay Society be requested to revise the existing terminology, and to substitute English and intelligible terms for the more unintelligible ones. He gives a few examples of the English substitutes he proposes. The natural arrangement of plants consists of two large divisions, *Phanerogams*, or "flower plants," and *Cryptogamous plants*, or "spore plants." "Flower plants" are again divided into *Dicotyledons*, or "two-seed-leaved." The "two-seed-leaved" in the same way are divided into *Angiosperms*, or "seed vessel plants," and *Gymnosperms*, or "naked-seeded plants," and so on. For the "natural orders" he would substitute existing or new English names, and for "genera" he would substitute "forms." In a complete flower the calyx would become the "cup," the sepals "cup leaves," the corolla the "crown," the petals "crown leaves," the cup and crown together, now known as the perianth, would be the "floral cover," and so on through the *andræcium* and *gynæcium*, and the whole anatomy of the plant. The adoption of this method would, Mr. Carstensen thinks, "vastly increase the number of students of botany, and in the end would materially further the progress of this unfortunately neglected science."—(*Nature*).

SOUVENIR DE LA MALMAISON CARNATION.

THIS splendid Carnation is neither so well known nor so much grown as it ought to be. The large size and delicate perfume of its

blooms render it extremely valuable for cut flowers, and as a decorative plant it is not to be despised. Its general treatment is simple. It can be propagated by layering or by cuttings made from the soft side shoots, which will root at almost any season of the year. The cuttings should have two cross slits through the base, as this facilitates the formation of roots and lessens the risk of damping. We have found plants obtained from cuttings inserted in sandy soil in a cold frame in August to be the best, being much more robust than those struck in bottom heat. The frame should be kept quite close and shaded during very bright sunshine. All that is required during the winter is protection from frost. By May the young plants will be well rooted, and should be planted out, about a foot apart each way, in an open border where the soil is of a good description, a little rotten manure and leaf mould being added. Pinch out the points when the plants are established, and attend to watering during dry weather. In September they may be placed into 6 or 7-inch pots, in good fibrous loam to which a little well-decayed manure, leaf mould, and sand have been added. The drainage must be well attended to, as stagnant moisture is fatal to this plant. The plants should now be furnished with five or six shoots, which will throw up flower stems during the autumn and may be brought into bloom as required. Those for winter flowering should have a temperature of from 55° to 65°. Such as are required for later flowering should be kept near the glass in a light airy house, and merely protected from frost until required for bloom, when they may be removed to a warmer house. When the plants are throwing up their flower stems an occasional supply of soot water will be found beneficial. The flower stems should be cut out as soon as possible after flowering to prevent the plants becoming tall and ungainly.

In May the plants should be again turned out in the border, or they may be potted and stood in cold frames to which air is admitted on every possible occasion. Those potted will bloom much earlier in the autumn than those planted out. The only insects that are at all troublesome are aphides, which may be destroyed by fumigation or by syringing with soapy water.—R. G. K.

FRUIT PROSPECTS.

THE prospect of a good fruit crop in this district was much better early in the season than it is now owing to the ravages of birds. Gooseberries, Red, White, and Black Currants all showed well, but bullfinches and sparrows have really cleared the first two in spite of soot and lime; the latter are showing well. Plums on walls did not show well on bush and standard trees; they were much better, but nearly all gone with birds. Pears were well set with buds, but the birds have taken all that were not netted. *Marie Louise* on south wall and *Uvedale's St. Germain* on a north wall are showing best. Apricots and Peaches are not satisfactory, and most of them were lifted last autumn. Apples—most varieties showed well—but as the buds were bursting they have been eaten by starlings, thrushes, and blackbirds, a thing I never saw before. Cherries, Morellos and others, show well, and have escaped so far; Medlars, not a bud left on two trees; even a *Pyrus japonica* was cleared. I am astonished the sparrows have not touched the Peas this season, while last I had to protect all young rows. Would steeping them in paraffin have anything to do with it?

Apples in orchards are showing better this year than they have done lately, and there has not been a good crop the last four years I am told; but many of the trees are old, covered with moss and lichen, and poor varieties, suitable only for cider. I enclose you samples of the Apple blooms destroyed, and would be glad if you could suggest a remedy. I have only been allowed to use the gun lately.—J. MILNE, *Camerton Court, Bath*.

[The remedies are: the gun for the birds, petroleum or lime in winter for the moss, and grafting for better varieties of fruit.]

HERE we are not very favourably situated for the finer kinds of fruits, being on the northern slope of a range of hills running east and west. The climate is mostly rather damp and cold, and trees are very liable to get covered with lichens and canker. Apples are the only fruits we grow on standards, as Pears, Plums, and Cherries do not come to perfection on standards except in exceptionally fine seasons, which unfortunately are few and far between, last season being the most favourable we have had for years. The wood ripened well, with the result of an abundance of blossom on all kinds of fruit trees and bushes. Apricots began to burst their flower buds about the end of February, and on the 3rd of March there were 15° of frost, which has destroyed all the blossom except a few that lay against the bricks. Peaches were eight days later in bursting their buds, which was in their favour, as they are well set. I always cover the Peach and Nectarine trees with old herring nets, which I leave on until the fruit is well stoned, as I find damage results to the tender fruit if taken off sooner. But this year I unfortunately was too late in putting the net on the Apricots. Plums are setting well, notwithstanding we have had about a week of frosty mornings, on some mornings as much as 7° of frost, and during the day a bright sun and cold east wind; but I see it has damaged a good many blooms on the early Pears. Nevertheless, I think there will be a good crop uninjured. Apples are now opening their flowers, and I expect they will be safe unless the frost is very severe hereafter. Cherries, except on the south wall, are not in bloom but look well. Gooseberries and Currants have a good appearance, and for once the bullfinches have left them alone. Last year they scarcely left a bud on

them. I cannot say the sparrows have ever touched the fruit buds here, but as soon as Peas are through the ground they commence nipping the tops off the leaves. — GEO. GALLAHER, *Kilkerran Gardens, Ayrshire.*

CARLUDOVICA PALMÆFOLIA.

WHEN Messrs. B. S. Williams & Son, Upper Holloway, exhibited a specimen of this plant at the meeting of the Royal Horticultural

deeply divided, and the divisions 4 to 6 inches across. It is a fine lovely green, and the arching leaves give the plant a graceful appearance. It will succeed in a stove or intermediate house in a compost of peat, loam, and sand.

The Carludovicas are easily mistaken for Palms, which they closely resemble, but they are regarded as the botanical allies of the Screw-Pine (*Pandanus*) family.



FIG. 58.—CARLUDOVICA PALMÆFOLIA.

Society on August 27th, 1889, the Floral Committee at once awarded a first-class certificate for it, a recognition that was well deserved, as the plant will evidently prove most useful. Several fine Carludovicas are in cultivation, and occasionally make their appearance at exhibitions in collections of fine-foliage plants, where they have a capital effect. They are also sometimes employed in sub-tropical gardens, particularly *C. palmata*, which is of strong habit and well suited for that purpose.

The species represented in the illustration (fig. 58), kindly supplied by Messrs. B. S. Williams & Son, is one of the most elegant known, producing leaves 2 feet long and 1 foot wide at the broadest part

THE CARNATION.

(Continued from page 340.)

[PRIZES for essays on the Carnation having been offered through the Ealing Gardeners' Improvement Society, Mr. Charles Turner, the adjudicator, awarded the first prize to the following useful contribution of Mr. David Cooper, foreman, Gunnersbury House, Acton.]

Layering, as I have already said, is the surest method of propagating, and should be commenced about the last week in July. By that time the blooms will be out, so as to decide upon any sorts that were doubtful as regards their value. There are some sorts more difficult to root than

others. These should be begun first, and follow with others until finished, which should not be later than the end of August. After that I do not consider it would be safe, although I have seen some, especially the old red Clove variety, root freely when layered in the middle of September, but it would not be advisable to leave them so late. The day before layering is commenced, if in pots, they should have a good watering, as afterwards this can only be done through a fine rose on account of the layers; and the same should be applied to plants in beds and borders if the weather has been dry any length of time. When layering in pots little of the surface soil should be pricked up, and a little of the compost advised for cuttings should be added. Then trim off some of the under leaves next to the roots, using a sharp knife, on the under side a little below the second or third joint make a cut horizontally right through one joint, dividing the stem half way through as it goes. Cut the end of the tongue carefully off close to the joint, if left on it might cause it to decay. The tongue should then be fixed downwards in the soil, and secured firmly with a peg made of wood or fern. Then cover the joint with some of the fine soil, and should it at any time become washed bare, more should be added. In about six to eight weeks they would be ready to pot into 60's, large or small according to the size of the plants, and if cold frames are available, where they are intended to be kept through the winter, they might be taken straight away, providing that they are well exposed to the sun; or they could be placed outside. In either case they should be stood on coal ashes to keep the worms from working in the pots. If placed outside they should not remain out after about the middle of October, when they must be taken to their winter quarters. This mode of layering would apply both to pot and border plants, but their general cultivation will be dealt with separately.

Soils.—The Carnation is found to grow best in a loamy soil of a sandy nature, and if the plants are expected to thrive satisfactorily, some pains ought to be taken to secure that which is best adapted for their culture. Loam, which is one of the most essential factors to produce the above effect, is too well known for me to define here, but its quality varies considerably in different localities. If I were allowed the privilege of choosing my own, it would be from some rich pasture land, full of fibre, and of a light yellow colour, where sheep were allowed to graze over, and which a year or two previous had had a dressing of road scrapings. It should have a pleasant smell when freshly dug, and when pressed between the thumb and finger should feel soft and oily and not sticky. But as loam of the above character is not always obtainable, the only way then would be to get that which has the nearest approach to it. A good test for determining the quality of loam is that the grass is fine and luxuriant, not of a wild, rank growth. Always avoid that which contains iron, which, if closely scrutinised, can easily be detected by the rust-like veins running through the soil, and generally the earth surrounding it is of a dark blue colour.

Assuming that a choice of loam has been decided upon, the next thing will be, when dug and brought in, to get it stacked, which should be done by placing the turf grass downwards, and between each layer give a good dusting of newly slaked lime, using while hot and mixed with soot, in order to get rid of any wireworm or grubs that might abound, which are the most destructive insect to the Carnation, besides the manurial properties this mixture contains. Build the stack and finish off with a ridge to throw off the rain. This stack should remain for eight months at the least before being used.

Sand is another indispensable ingredient, and if obtained from the bed of a river would be ready for use at any time when dry, but generally there is some difficulty in getting it. If it cannot be obtained we should use road sand, which I have already alluded to in the compost used for striking cuttings and recommended to be washed before using, on account of its being impregnated with seeds from weeds growing by the road-side, and would soon become a nuisance if used direct without any preparation, from the myriads of little weeds springing up. If one has failed to procure river sand and has succeeded with road sand, a good plan would be to get in a quantity and throw it up in a heap, or slope it against a wall, using quicklime as advised for stacking loam, letting it lay twelve months before using; by that time anything injurious will be decomposed, when it can be sifted and used as required. If neither of the above mentioned sands are procurable, silver sand must be used.

CULTIVATION IN POTS.

Plants that were rooted the previous autumn and successfully wintered, when starting into growth will require potting. This applies to those intended for the above only. About the middle of March I consider would be the safest time to perform this, but con-

sidering the variableness of our climate it would be best to be guided somewhat by the season. When grown singly the pots best adapted for this purpose would be 32 and 24 sizes (according to the habit of the plants), which are very useful decorative sizes; 48's might be used for weak growing varieties, but when larger specimens are required 12 and 16-size pots should be used, putting three or four plants according to the above rule—viz., in a 12-size pot three strong growing or four weaker growing plants should be placed. While the operation of potting is going on be careful the varieties do not get mixed. To see two different sorts in one pot being different in habit of growth and colour of bloom would look anything but becoming in a good collection. Great care should be taken in crocking the pots. Use a large hollow piece for the bottom covering the hole, not flat tile, as some use, then a few more large pieces, finishing off with smaller, which would secure good drainage, as nothing is more detrimental to the health of the plants than being what is commonly called waterlogged. Cover with the roughest of the compost.

Roughly Broken Loam.—The different ingredients used with this depends much upon its quality. If it is of the character previously described and recommended, horse droppings rubbed through a sieve should then be added, using about one-fourth in proportion, and about one-sixth of coarse sand. If the loam is inclined to be heavy a little more sand might be used accordingly, also leaf mould might be added with advantage to about one-sixth, otherwise I should not recommend it. Before turning it give the whole a sprinkling of quicklime, using a 32 potful to 3 bushels of soil. Here I might add a word or two regarding the horse manure used. As I have said before, it should not be from old Mushroom beds, nor as some growers recommend from old hot-beds, but some that has been specially prepared for the purpose. This can be done by placing a quantity into an open shed, or anywhere under cover, all the straw being previously shaken out, letting them lay for six months before using, turning them occasionally to sweeten and assist decomposition. When the soil has been turned several times so as to get the whole well incorporated, the pots should be filled to the required depth, carefully turning out the plants, removing the crocks, and should the plants have become root-bound the roots should be pricked out with a sharp-pointed stick, then place the plants in position in the pot, making the soil firm with the potting stick, and when finished the ball of the plant should be covered with about half an inch of the new soil, which should be $1\frac{1}{2}$ inch from the rim of the pot to allow room for water. The soil when used should not be too wet, rather spread it out and leave it a day or two. If potted in that condition the soil will become clammy, which should be strictly guarded against to insure good results, as it prevents the water passing through the soil, and besides, in a short time will crack away from the side of the pot, hence be very misleading in watering, as the plants might be wet when appearing to be dry, and would moreover lead to anything but good results. Neither should it be too dry, or the plants will require watering as soon as potted, which should not be the case. When potted they should be placed back into the cold frame again, giving them a sprinkle all over with water through a fine rose, and if the weather be favourable it might be repeated occasionally, but if the soil is in the proper condition it is all they will require for ten days at least, unless they show any signs of flagging, when they should have a good watering through a coarse rose, taking care they get soaked through. After that they should be watered very carefully, testing each plant, and watering only when they really require it. During the time that the plants are in the frames after potting they should be well ventilated, and as soon as they start to make fresh growth they should be stood outside on coal ashes fully exposed to the sun, but sheltered from high winds if possible.

When they begin to send up their flower spikes they should be staked at once, and all leading growth should be secured, to prevent being broken by the wind. If the plants show more than one flower spike, the strongest should be selected, the rest pinched off, to throw the whole strength into the one main stem. To flowers that are intended for exhibition, or if large blooms are aimed at only, the buds should be thinned down, leaving two on a weakly stem and three on a stronger one, but for ordinary culture almost all the buds may be left, simply taking out weak or deformed ones. The thinning operation should be done almost as soon as the buds are formed, leaving, of course, the most promising ones.

As soon as the buds show signs of bursting they will require constant attention, as sometimes they open very irregularly. In order to prevent this a piece of matting should be tied carefully round, or small elastic bands could be used, which are made for the purpose and sold by most

nurserymen, and which I consider would be preferable, as they would allow the buds to swell, and not want easing from time to time as matting would as the buds increase in size. If the calyx is inclined to burst on one side, slit the opposite side in two or three places, to make the blooms symmetrical. In crowded buds it would be best to ease it in time by just slitting the calyx in the several scallops marked at the top, so that the guard leaves will fall regularly all round.

Protection from Rain.—As soon as the Carnation begins to unfold its blooms it should be protected from the rain and scorching sun. This must be done if the blooms are to be brought out to perfection. On no account should any water be allowed to touch them. The greenhouse or conservatory would be the most suitable place for that purpose. The front stage of the former would perhaps be the better of the two, as generally at this season of the year some of the customary plants are set outside in the open air; and besides, sometimes the conservatory is badly situated for the well-being of the plants. But should it contain a front stage, where they can get plenty of light and air, they could be placed there by themselves, or mixed with other plants to suit the appearance of the place. In either case they will require shading during the hottest part of the day, say from about nine or ten o'clock in the morning, according to the weather, removing the blinds in the afternoon according to the position the plants occupy, giving as much air and exposure as is practicable without injury to the blooms, keeping a sharp look out for grubs and earwigs. If it is not convenient to house all the plants some lights might be temporarily placed over those outside to keep the rain off, and shaded as previously advised; by so doing they will keep much longer in bloom than otherwise.

Staking the Plants.—In doing this a neat straight stick should be used to each stem, looping each bloom separately, having each stick the same height as the stem. If small hazel sticks are available so much the better, as they are less conspicuous than white sticks, or even if they are painted green; the latter could be used if hazel cannot be procured.

Liquid Manure.—This might be used occasionally to an advantage, which will materially assist them to bring out their blooms true to their character. This should consist of sheep manure put into a bag and allowed to soak in a tub, dipping it out and diluting it according to its strength. It must never be used very strong, and only when the pots are well filled with roots, and must be withheld when the blooms are nearly expanded. Soot water might also be used accordingly. When the plants have finished blooming they should again be brought into the open air for layering, except those that have seed pods and are intended to be saved; these should be given a light airy place exposed to the sun to ripen the seed. An early vinery that is usually thrown open at this season and the Vines partially pruned would answer admirably.

CULTIVATION IN BEDS AND BORDERS.

This popular method of cultivation is resorted to in some degree by almost everyone that owns a garden; and doubtless some varieties do better in the open air. Of course, they are not so much under command as when grown in pots, but in ordinary seasons an excellent display can be made when grown in well prepared beds and borders, and on the trouble bestowed on them in making depends to a great extent the amount of success that will follow, also upon the value set on the plants. The general idea of making a Carnation bed, and which is mostly given when advice is sought from growers, is, should the soil be heavy, give it a good dressing of road scrapings, dusting it well with soot and lime, turning it up rough for the winter prior to planting in the spring. If the soil is of a light character be more sparing with the road scrapings, but a good mulching of horse droppings might be added. This advice is very good for ordinary culture, especially if the soil is of a fairly rich loamy nature. But if the soil does not answer to the descriptions given above, and choice sorts are intended to be grown, the better plan would be to make a fresh bed or border altogether, which would be more likely to insure success if good blooms are desired. If this has been decided upon the first step will be to take out about 1 foot in depth of the old soil and fork up roughly another foot, provided there is that depth from the subsoil; over this spread about 4 inches of horse droppings; an old hotbed would answer for this purpose if composed chiefly of the above material. Then fill up with the soil previously advised for potting; only it may be used in a little rougher state, finishing off with some of the finer, and raising it about 6 inches above the permanent ground.

Borders should be brought sloping gently to the front, but beds are raised in the middle and the top rounded, bringing down each side in the same manner, just enough to give the water a gentle fall. The plants should be when planted out singly 10 inches to 1 foot apart, but if in pairs they should be 15 inches from plant to plant to allow room

for layering. I mention pairs, as some growers adopt that method from an economic point of view, and planting as such would prevent the plants being split apart. About the end of March or the first week in April is usually the best time to perform the above operation. In regard to protecting the blooms from rain I shall say very little, as that will depend entirely on the value set on them, as appearance generally predominates in bedding. If desired they can be protected in the same manner as advised for pot plants outside, or by bowing sticks over them and stretching canvas over would answer the above purpose. The same precaution must be taken as to the slitting the calyx, as they are more liable to burst irregularly than when grown otherwise; if neglected the calyx will split on one side following on down to the base of the pod and so disfigure the blooms. I hardly need say that the plants will require frequent watering during hot dry weather, also staking, weeding, and stirring the surface of the soil occasionally to prevent its becoming hard, thus not allowing the water to penetrate it, besides giving a neat appearance.

THE DESCRIPTION OF A GOOD CARNATION.

The value of a good Carnation is estimated by the perfect construction of its petals, and distinctness as to the various shades and tints. In a perfect bloom every petal should have its own distinct colours peculiar to its class, and the more bright and distinct the nearer approach they are to perfection. When the bloom is fully developed the base of the cup or calyx should remain intact, without bursting in any form whatever. The external or guard petals should be large, evenly set, not overcrowded, and without blemish of any kind. Neither should the bloom be overcharged with the inner petals, nor too thin, but sufficient to give it gradual ascent, forming, as it were, a crown in the centre, each petal being even and rising one over another in regular order, and tapering to the centre. Each bloom should be perfectly round, the petals having a wax-like appearance, and being of a stout texture. The fragrance of a bloom will also add to its value. In some Carnations this quality is more perceptible than in others, but all possess it to some degree. It seems to be most prevalent among scarlet bizarres, where the Clove stripe recurs frequently in the petals, also among tree or perpetual varieties.

Run Flowers.—These are flowers running from their naturally disposed colour which characterise their different classes, and flowers having a tendency to that freak lose all advantages as regards exhibition purposes, and occasion great disappointment to the grower, as when a bloom once sports it rarely ever returns to its true character again. Anyone who has grown a collection of Carnations and studied their character would have noticed the above peculiarities about them. But why they are possessed with such there is a great difference of opinion, and I must admit that I am not prepared to explain. There are some sorts more subject to run than others; in some it is very slight, but generally it is very decided; e.g., a scarlet flake will sometimes change into a plain scarlet, or a bizarre into a self-coloured flower. Some have an idea that it is brought about by overfeeding, and I am inclined to think it is to some degree, but sometimes it occurs in flowers when grown in poorer soil, and do what you may, in so many shades there will be always a certain amount of running. Some scientists try to explain the cause by the plants going through a process of unmixing of colours. Be that as it may, I believe it can be prevented to some extent by a little more attention given to the soil used for those particular sorts that are apt to sport. Instead of using the amount of horse droppings previously advised, take about half, and add the same quantity of lime rubble, run through a sieve, and well mix with the other ingredients.

(To be continued.)

TOMATO CULTURE—PREVENTION OF DISEASE.

I AM a great lover of Tomatoes, and a firm believer in the old adage, "Prevention is better than cure" respecting Tomato disease. But as to the Tomato fungus—a relative of that affecting Potatoes, for neither do I think there is any specific cure—prevention must be looked to. The syringing with sulphates, even if not inimical to the foliage, cannot be expected to enter into and eliminate the fungus from the tissues. Everyone knows when the well-known spots come on Potato haulm the fungus has got through and through the stem so affected. External applications are so much time and money wasted. 'Tis so with Tomatoes. Last year at the back of my greenhouse I planted two plants of Carter's Perfection and Blenheim Orange at the moist corner, so to speak, and two more of the same varieties in the drier and warmer south-east corner. To make matters worse for the western end where the Tomatoes were planted some drip came from an interstice in the overhead ventilator. Very soon a mildew-like fungus appeared, probably

Cladisporium, and this was followed by a white-winged aphid, though I cannot say the latter did much harm. Both ultimately, but not until the end of the season, spread to the healthy plants that were dry and warm throughout, but, strange to say, made so little progress as to do them no harm. Further, I had Ferns, some of the hardier Orchids, &c., in the moist end, and did not mind giving air so frequently. This had an injurious effect on the west-end Tomatoes too, and of the limited number produced neither in size, number, or quality could they compare with those grown at the other end that were more exposed to sunshine, a freer current of air and drier air, and that had water less frequently. Outdoors, from plants grown in different positions, I arrived at much the same conclusion, and which may be summarised—1, A tolerably dry warm soil, with a mixture of lime rubbish and brick dust, sand, &c., through the loam and leaf mould. 2, No fresh or very rich manure, and if the soil is fairly good better depend on an artificial dressing after the fruits are set. 3, The freest current of warm air and the fullest available sunshine, and no shading by any means. 4, Proper thinning of the unnecessary side shoots and foliage, so as to expose the fruiting stems to full sunshine. 5, As this is a good time for planting water very slightly, plant in good warm soil that had been exposed to the sun, and if water must be used now and then let it be warm or heated in the sun. Precaution is better than cure; thus disappointment and subsequent vexation is avoided.—W. J. MURPHY, *Clonmel*.

NOTES ON AURICULAS AND SHOWS.

It is not an easy matter to criticise a show of florists' flowers, however well one may know them, and this is more especially the case with a flower of such a peculiar character as the Auricula, for I am afraid it must be said, like olives or oysters, it is an acquired taste. "Oh! yes, I have no doubt very beautiful, but very prim and stiff; I really cannot work myself up to admire these flowers," is what one is often doomed to hear, and the amused wonder with which one of the ordinary frequenters of shows will stand by and listen to the enraptured exclamations on some "general favourite" is very delightful. Thus when I was with an excellent judge and grower of Auriculas comparing two green edges the other day, a bystander said, "Well, it must require a connoisseur to see any difference between them." They were very distinct, and we were not examining them for that purpose, hence many a lover of flowers will consider all criticism on the subject useless. Then there is the lover of herbaceous plants, who has a sneering contempt for anything that is the subject of laws and rules. There are species of Auriculas and Primulas, and he so revels in these that he very much wonders why people should trouble themselves about what is a violation of Nature, and from the pinnacle of his æsthetic majesty looks down on the florist with simple wonder and amazement. And then last and worst of all there are the florists themselves—good genial fellows most of them, but terribly afflicted with corns, and by no means soft ones. Now, if in your criticisms you deem it necessary to find fault you may expect such a look and growl as I should myself indulge in if anyone trod on my toes. Now, if anyone in any of these three classes find fault with what I have to say about the Auricula Show I give fair warning it will pass by me as the idle wind, which I respect not. I have no object to serve but the welfare of a flower I have loved from my boyhood, and which now that I have passed man's limit has still many charms for me, and brings up pleasant mementoes of the days long ago.

Not that I have much adverse criticism to make on the National Exhibition, which in its extent somewhat surprised me. To me one of the most satisfactory features of the Show was that it was so much more a southern one than it used to be. The northern growers, with the exception of Mr. Horner, were not there. Messrs. Ben Simonite, Bolton, Potts, Penson, Wilson, and others, whose flowers used at one time to fill the tables, were absent. I suppose in some cases the lateness of the season kept them back, for I am glad to find that growers are coming back to the notion that forcing Auriculas into bloom does not pay. Be this as it may, it was a real pleasure to find that southern growers were coming on, and that too in very dashing style. I remember in former years how I used to regard Reading as the home of one of our greatest florists, one who helped so much to raise the Show Pelargonium to the pitch of excellence it has attained, and now the same town seems as if it would make a name for itself amongst Auricula growers. A few years ago Mr. Henwood was unknown by name, now he ran the great Auricula champion Mr. Horner so close that it was a very difficult matter to decide, while in the class for six Auriculas he took the first place. Now all this is as it should be, although I once despaired of ever seeing it accomplished. I do not think one southerner exhibits in the northern section, and therefore it is only right that the lion's share in the southern show should fall to the southern growers.

I do not think that the quality of the flowers was at all up to the standard of excellence we have sometimes seen, nor do I see how it could be otherwise. It was a late season, and hence such flowers as George Lightbody, Lancashire Hero, and Prince of Greens, which are long in opening, were but scantily represented. Then there was that spell of cold weather in the latter end of March and beginning of April, which tended very much to chill the bloom, and consequently there was a large number of crumpled edges, and what someone has called distressed blooms. Nor were the trusses so large as in many seasons. Of this latter I do not complain, for I believe that a truss of seven pips of an edged flower is the most symmetrical one can have,

but where a truss bears many there is the greater facility for cutting out bad ones and leaving perfect pips; and although I do not hold with the practice of cutting all out to get three perfect ones, still one may err on the other side. Some varieties give larger trusses than others, but it is to me no recommendation to a truss that it contains ten, eleven, or twelve pips. Another point, I noticed much less drawn foliage than used to be the case. This most probably arises from the disuse of heat, which has a tendency to draw up both foliage and flower stem. As far as my judgment went Mr. Henwood's plants were the most compact and in every respect the most orthodox in the Exhibition; his plants reminded me of what Mr. Penson's used to be in the old South Kensington days.

The interest, of course, is mainly with the newer, although to a certain extent this is of a provoking character. You see a very fine new Begonia, or Pelargonium, or Chrysanthemum; you make a note of it, and say to yourself "I mean to have that," and in a reasonable course of time you do get it. But you see a new Auricula, you admire it; you say to yourself, "I should like to have that," but you may have to wait till your hair turns grey before you do. Mr. Horner has been raising seedlings for years, has gained prizes for them, has caused the mouths of fanciers to water, but oh! how few of them have found their way into commerce, not, I must suppose, from any unwillingness on his part, but on theirs. Some kinds will remain year after year without throwing an offset, and although cutting off the heads has been advised, I fancy but few try it.

Of the flowers which are to be had the best were Heroine, a beautiful self, possessing all the requisites of a good flower, and perhaps eclipsed by the daughter Mrs. Potts, raised by Mr. Sam Barlow from seed sent him by Mr. Horner. The Rev. F. D. Horner (Simonite) is a fine green edge, and it must be so, as it took the premier prize, beating a good plant of Leigh's Colonel Taylor and Traill's Prince of Greens. It has a defect (what Auricula has not!) in a certain thinness of paste through which the body colour sometimes shows. This is conspicuous in Litton's Imperator, from whence this flower (although I only write from surmise) would appear to have come. It is no small credit to the intelligence of my late excellent friend, Mr. Woodhead, whose loss to floriculture was, I am sure, a great one, that four of his flowers should have appeared in the winning stands. Thus Mr. Horner, in his first prize stand of twelve, had Rachel (a grey edge), while Mr. Henwood had in his second prize lot George Rudd, Rachel, and Black Bess, while Mrs. Dodwell was also shown. I am sure it will be a pleasure to Miss Woodhead to find her brother's flowers occupying so honourable a position. Amongst other flowers I liked Monarch, green edge, although it had a little tendency to coarseness. Favourite and Iris, both flowers of the Sapphire type of colour, were very promising. Mélanie, a dark self of good character; Irreproachable, a fine flower, although the paste is somewhat faulty; Miranda, a flower which somewhat reminds one of Conservative; Magpie, a fine white edge, with deep black body colour, I regard as the best edged flowers that Mr. Horner has raised. Mr. Horner had also a yellow self, which all the æsthetics called precious, but which I cannot say I regard with any favour. Desdemona, a white-edged flower, was also good.

I am sorry to say that I have nothing to add about the Alpines. I have tried to like them, have again grown a few, but I am sorry to say that they can never, to my mind, be named in the same breath with the show flowers.

I hope that the success which has attended the attempt to popularise this flower, a success of which I long despaired, will induce others to imitate our friends at Reading. If anyone had said when, a few years ago, Mr. Henwood began to exhibit that he would beat the oldest and most experienced exhibitors people would have shaken their heads. But he has done it, and, as I have already said, ran him very close in the large class of twelve plants. What he has done others may do, and thus a still greater popularity be gained by this flower; and for the encouragement of such let me say I can look back on nearly sixty years of affection for this flower; that it has been, like all things, a source of mingled pleasure and trouble; that I still retain the old love, which not the Rose or the Gladiolus, or any other flower, can supplant.—D., *Deal*.

SPRING FLOWERS AT HOME AND ABROAD.

(Continued from page 339.)

THE BULB FARMS OF HOLLAND.

No one who visits Haarlem, on whatever mission bent, passes the bulb farms by without at least a cursory inspection, and the majority of those who travel thither from England do so for the express purpose of seeing the flowers. Many bulb dealers go over annually to inspect the stocks, others to try and pick up bargains (which often turn out bad ones) at the bulb auctions, and an occasional amateur finds his way across, as much from curiosity to ascertain whether the farms are really something "out of the way" as anything else. In the comments which I purpose making I do not propose to indulge in the stereotyped descriptive matter and nothing more, but rather to single out a few special points of interest which may prove not less acceptable to the readers of the *Journal of Horticulture*.

Haarlem, the home of the bulb, is a name that is written large in the pages of history. For many years the brave forefathers of the Hyacinth growers of to-day had a hard struggle against foreign invaders from various lands. The sword was as familiar to them as the pruning hook, and they fought for home and freedom as sturdily as they had fought to

drag their sandy flats from the devouring sea. Rembrandt has enshrined on his imperishable canvas the stern faces of these heroes of the past, and if their names were effaced from the annals of their native land the brush of the mighty painter would suffice to keep their memory green in the hearts of their descendants. It is curious how ancient and modern Holland are brought into contact by the artist's brush. In looking through the flowers at the great Exhibition at Haarlem a few weeks ago I discovered a favourite old Hyacinth not much grown in England, Kenau Hasselaar. An hour later I stood before a marvellous picture which depicted an assault on Haarlem by the Spaniards, and there was Kenau Hasselaar as she had been in the flesh, her face aglow with savage fire, leading her devoted followers on to the very edge of the battlements, hurling down the scaling ladders of the men-at-arms, wielding axe and halberd with frenzied strength, and pouring down boiling oil and tar upon the ascending foe. Wives and daughters fought side by side with husbands and fathers—the eye that aimed destruction upon the son was extinguished with horrible swiftness by a fiery flood hurled by the mother's hand. One forgets the peaceful pursuits of the present in gazing upon this wonderful presentment of the fierce struggles of the past—struggles that inaugurated the existing era of progress and plenty, and without which an intelligent and contented people would not now be cultivating the soil in order to provide flowers for the adornment of British homes. Under the demoralising rule of the Spaniards the sea would have reclaimed its own, and the rich treasures of the fields would never have attained the development which now makes them of such vast importance in the world of flowers. The painting is fascinating in its vivid realism. The quiet of the Exhibition Hall fades away before it. In place of the soft lines of colour with their pleasing foil of green, beautiful in themselves and not less significant from the lesson that their silent voices teach of the happiness of peace and progress, rise the grim horrors of the fierce struggles that preceded the existing era. The bulb fields were battlefields then, and it needs an effort to break the spell of the picture, to bring the imagination back from the past, and to revive the recollection that if a gardening writer may be pardoned for an occasional excursion from Flora's domain into the realms of Mars, it must only be a brief digression.

Holland, as generally understood by us, comprises the whole of the Netherlands. This is not quite correct, inasmuch as Hol'and forms only a part of the kingdom of the Low Countries; but it is not worth while to discuss geographical accuracies in the present connection, for the bulb-growing district is actually a part of Holland proper. Haarlem is its centre, and the great majority of the bulbs cultivated on such a colossal scale for exportation are grown between that town and Leiden, distant about twenty miles. These places are reached almost as easily as any great English town, and much more quickly than the north of Scotland. For comfort and economy combined the Great Eastern route *via* Harwich and Rotterdam may be well chosen. The continental train leaves Liverpool Street, London, at 8 P.M., and Rotterdam is reached at eight the following morning, the sea journey lasting a little over ten hours. Trains from the Dutch port travel to Haarlem or Amsterdam in about an hour and a quarter, so that the whole journey lasts but fourteen to fifteen hours. Return tickets are issued available for a month on very reasonable terms, and the question of expense is therefore a by no means serious matter. Whoever is desirous of a holiday may have one full of interest and enjoyment by running over to spend a few days among the Dutch bulbs.

To many untravelled Englishmen foreigners are credited with mysterious ways and guileful customs, to become entangled among which is to fall a prey to abnormal embarrassment and extortion. No such apprehensions need agitate the breast of the visitor to Holland. He will find himself almost as comfortable and as much at home as if he were in England. Should he not find himself in a condition to enjoy a hearty breakfast as the steamer completes the last few miles of her journey in the river Maas, but avoids the dining saloon in order to study the play of light and shade on the surface of the water over the side of the vessel, he can restore exhausted nature at the railway station with something at once cheap and substantial. I would not suggest that any such suspicious occurrence is probable. I merely suggest a ready means of rectifying the effects of a possible rough passage. Nor, should the traveller have been studying Delille or Otto, need he let loose his rudimentary knowledge of French or German upon the unoffending head of the Hollander. To such blandishments as *Parlez vous Français?* or *Sprechen Sie Deutsch?* the reply is frequently a negative shrug; but try him with English, and the effect is usually much more satisfactory. Let it be understood that this does not apply to those of fair social standing. Most Dutchmen of average education know French, English, and German, and with many you might throw in some half a dozen other languages without finding them at fault. It refers to the customs officials, boatmen, porters, waiters, and such like, though the latter sometimes display unexpected abilities as linguists. An inquiry of one with a decidedly Gallic cast of features as to whether he spoke French was answered by the startling reply, "No, I don't speak French; but I speak American!"

Holland proper is not a large country, and the distances from one important town to another are short. From Rotterdam, a remarkably fine and busy town, the Hague (which must be looked for as "den Haag") is very quickly reached, but the traveller in search of spring flowers does not stop here, although as a summer resort it is unequalled. Journeying on he soon reaches Leiden, or Leyden according to English orthography. Here he might stop and visit Mr. de Graaff, a great grower of Amaryllises and Narcissi, or, proceeding direct to Haarlem, work his

way back to Leiden after inspecting the bulb farms in the neighbourhood of the former town. From the latter onwards the bulbs begin to break upon the view. From the middle to the end of March there are sheets of Crocuses; the first, second and third weeks of April millions of Hyacinths, and then towards the end of April and the early part of May the gorgeous Tulips unfold. During the whole of April the fields are clothed in beauty, and both earlier and later than that month there is ample to reward a visit.

So recently as the autumn of last year the methods of cultivation followed by the Dutch were fully described in the Journal by Mr. Alfred H. Pearson, and it could hardly be of interest to re-traverse the ground covered in his admirable paper by giving over again such details of their culture as the Dutch think proper to communicate to inquiring visitors. There are, however, some points which I think may be found worth a few moments' consideration. One that interested me greatly related to the universal custom of removing the flower stems of the bulbs just as the spikes had attained full development. It is well known that this practice is adopted on all the farms, and the general opinion in this country is that there is but one object in view in depriving the plants of their beauty at its zenith—namely, to save the plants the strain of ripening seed, and to aid the development of the bulbs by the power thus conserved being devoted solely to them. This, according to one of the largest growers and exporters at Haarlem, is not the case. The specific object of removing the flowers of Hyacinths and Tulips is, he says, to avoid the petals falling upon the leaves, which occasions spotting, commonly called "fire." When the foliage becomes thus affected its powers of assimilation and elaboration are materially curtailed, and the bulbs are greatly weakened. It must be confessed that my preconceived notions of the primary object of the cutting down process practised by the bulb growers were somewhat upset by this information, and I inquired if the question of saving the strain of seed ripening was not considered of at least some weight. The reply was in the affirmative, but it was added that it is so small a consideration that in the case of Crocuses and Narcissi, which do not become "fired" by the falling flowers, it is not thought worth while to sacrifice the time necessary for removing the latter, and they are consequently allowed to fall. The manner of removing the flowers is merely a matter of convenience. Hyacinth spikes are cut off; Tulips, the stems of which are brittle, are broken with the fingers and thumb.

I have no reason to believe that my informant was practising on the credulity of his English visitor in this matter, and I was informed that the custom and its objects were not peculiar to one individual and practised by one firm, but were of general adoption. In this case we have been supporting ourselves with a broken reed in pointing to the Dutch system in corroboration of our views on removing the flowers of Hyacinths and Tulips, but as regards the merits of the practice our opinion need undergo no change. It cannot be harmful to relieve a plant of the burden of seed ripening; on the contrary, it must possess a measure of benefit, and therefore the practice should be continued.

In walking about the farms and conversing on various points in bulb culture, one cannot fail to be struck by the important part that is played by the disease. Withered plants or ugly gaps show where its fell work has been accomplished. A curious instance of the disease localising itself was pointed out to me on a large farm. One end of a series of beds had been attacked, and the line of destruction was as clearly defined as if the affected portion had been scorched. On this self same spot the disease had manifested itself year after year, the remaining portions of the beds always escaping. The whole of the soil had been removed and fresh substituted, and new stocks of bulbs had been planted, but the disease reappeared with unflinching regularity, until one of the most experienced bulb-growers in Holland had to confess himself completely baffled. Does any reader of the Journal wish to increase his store of this world's goods a thousandfold? Possibly there is at least one who is not in the happy position of having enough and to spare. Then let him study the bulb diseases which perplex the Dutch growers and annually subject them to heavy losses. Let him note effect, study cause, and find a cure, and he will be hailed as a benefactor, and, what is of more importance, reap a golden harvest. During the past six years a new disease has attained serious proportions. It has been carefully investigated by the two Amsterdam savants, Professor de Vries and Dr. Wakker, and I am promised the result of their inquiries when an opportunity arises of communicating them. Although they have, I believe, traced a bacillus, they have not succeeded in finding a means of checking it. Some varieties are affected by this disease to a far greater extent than others. Its presence is readily detected in the beds, and diseased plants are at once destroyed. The roots, I believe, are the points of attack, and they are speedily destroyed, the leaves also changing colour and withering, in fact the whole plant collapses.

There is a serpent, it will be seen, in this bulb growers' Eden. Were they free from the disquieting disease matters would be roscate for them just now. Bulbs are in great demand at enhanced prices; in fact, trade is brisk and profitable all round. The latter feature would not be admitted by many. It is a peculiarity of some Dutch growers that every innocent Englishman must be informed that there is no profit in bulb growing. The innocent Englishman sometimes responds with a "smile that is childlike and bland" that he had no idea such business-like people as the Dutch would do so much work from purely philanthropic motives; at which the grower, unless he fails to understand English when he sees that he is being "got at," is moved to the confession that he does "make a little by it, but nothing worth speaking of." It is not so bad in some cases, however. One large grower dis-

poses of 1000 cases per annum, which, at the present increased value of bulbs, will represent at the least £10,000, possibly £15,000. Accepting the former figure, and computing the profit at the very moderate rate of 10 per cent, we have, or rather be bas, an income of £1000 from forty to fifty acres of land. Not satisfied with the present prosperous condition of the bulb industry, the growers propose to further increase the price of their bulbs this season. The demand last year was exceptionally good, and they anticipate another heavy sale this year, hence on the principle of making hay while the sun shines they will augment the prices still further. Retribution, however, is inevitable, for sooner or later a reaction must come.

It is not easy to turn over such a tender morsel as the result of the little calculation given above without asking oneself if some portion at least of the enormous number of bulbs imported by this country could not be grown at home. This subject is one of such importance that it could not be adequately dealt with in the few lines left at my disposal in the present article. I will, therefore, leave it, with other matters, for a future paper, premising that we are not without a gleam of hope. —W. P. WRIGHT.

(To be continued.)

FERNS AND FERNERIES.

[Prize essay by Mr. E. Booker, Chiswick Gardeners' Mutual Improvement Association.]
(Continued from page 360.)

FILMY FERNS.—These Ferns are perhaps amongst the most beautiful and interesting of the whole family. In consequence of their requiring a closer and moister atmosphere than can be supplied under ordinary circumstances in the stove or greenhouse, they must be grown in frames, bellglasses, or Wardian cases, and as these cases are now made in so many handsome designs, one of them properly filled with a good variety of Filmy Ferns is no disgrace to the most elegant dining or drawing-room. Care must be exercised in selecting a case to see that the bottom is perfectly lined and sound, and the outlet for the water perfect. On the bottom of the case place plenty of thoroughly clean broken crocks, on these place a thin layer of moss or sphagnum to prevent the soil washing down and choking the drainage. The drainage is a very important point in the cultivation of Ferns in cases. The compost should be free and open, consisting of good fibrous peat, a small quantity of loam, leaf soil, and sand; this should be sifted and the finer particles used for other purposes. Some broken charcoal, sandstone, or pumice stone should be well mixed with the soil after it is sifted. The object of such an open compost is to secure a free passage for water through the whole body of soil, and the free admission of air to the roots of the plants. Where such a compost is used it will be found the best roots are those which lie in the crevices between the pieces of compost. The size of the case must determine the quantity, and what size Ferns it will be necessary to plant. Such as the *Todeas*, especially *Todea superba* and *T. pellucida*, should be planted in pieces of tree stems, and raised a little above the level of the soil, so that their handsome graceful fronds may be seen to advantage. The groundwork may be made up with *Hymenophyllum tunbridgense*, *H. Wilsoni*, *H. demissum nitidum*, and a few of the *Trichomanes*, such as *T. radicans* (Killarney Fern), *T. r. dilatatum*, *T. trichoides*, and *T. reniforme*; the two latter varieties should by all means have a place found for them. The rhizomes will soon spread rapidly on the surface, and may then be pegged to the Fern stems, and they will grow in this position luxuriantly, covering the stem with their exceedingly handsome fronds. When all is planted water carefully to settle the whole of the plants. Keep them as cool as possible, and shade from bright sunshine. When fairly established they must, the same as other Ferns, have water when dry, and it will greatly benefit them if occasionally syringed during the hot dry weather, as most cases are not so completely air tight as to prevent the rapid evaporation of the moisture.

If the cultural details are carefully attended to I am of opinion that in these cases Ferns will not require replanting so often as every two years, as some persons advocate, for when replanting is done it destroys the chance of any seedlings appearing that might have happened had it not been disturbed. What can be more interesting than watching the little seedlings develop, and to discover to what species they belong? If from necessity replanting must be done, then previous to disturbing the Ferns have a proper supply of clean crocks and compost as before mentioned, so that when the Ferns are lifted everything should be at hand to plant them again as quickly as possible.

OTHER FERNS SUITABLE FOR CASES.—There are several varieties of Ferns exceedingly handsome and less expensive than Filmy Ferns that may be grown in cases. Those I shall mention I have found to do well, and proved to be quite interesting and beautiful. *Asplenium viviparum* if planted in a piece of tree Fern will make an excellent plant for the centre, with the dwarf varieties of *Aspleniums* to help form the groundwork. Such as *A. fontanum*, 6 inches in height, *A. obtusilobum* are also suitable. The last is a dwarf handsome creeping Fern, throwing out a number of runners, which if pegged down will readily root and produce plants, which continue the process. A few varieties of the *Doodias* are also suitable for this purpose. The best are *D. caudata*, 6 inches; *D. caudata* var. *confluens*, 6 inches; and *D. lunulata*, 12 inches. A beautiful and useful Fern for cases may be found in the *Anapeltis*, forming a pleasing contrast to the others mentioned. *A. nitida*, a free growing creeper, rhizomes silvery white, fronds small, undivided, light green. The rhizomes of this species should be pegged to the Fern stems, and will look very pretty. *A. lycopodioides*,

3 inches, and *A. squamulosa*, 3 inches, will grow very freely, and as they have small surface rhizomes they will soon spread and cover the whole surface.

FERNS FOR ROOMS.—Ferns are favourites with cottagers, and consequently have often to be grown in the ordinary room of a dwelling house, but through the dryness of the atmosphere they cannot possibly grow so well as when in a damper place. They are useful for table decoration, also for standing in the window, where they grow better and live longer than any flowering plant that can be obtained. Care should be taken that they are not introduced in a soft immature state of growth from a house where they have been subject to a warm moist atmosphere. Such plants will prove disappointing. They must be regularly supplied with water, the fronds also may be gently sponged or syringed with clear tepid water to remove the dust which accumulates on them. The same may be said of these as of those grown in more favourable positions—only water when requisite, then give plenty, using water as warm as the room in which the plants are growing. If these matters are attended to they will grow, and do much towards enlivening and beautifying the room. The following varieties are perhaps amongst the best for this purpose:—*Adiantum Capillus-Veneris*, this may be placed in a basket and hung in the window; *Asplenium bulbiferum*, *A. cicutarium*, *A. australasicum*, *Davallia canariensis* (Hare's Foot), *Lastrea aristata*, *L. a. variegata*, *Lygodium scandens*, *Pteris argyrea*, *P. serrulata*, *P. serrulata cristata*, *P. tremula*, *Scolopendrium vulgare*, and *S. vulgare crispum*.

THE HARDY FERNERY.—It would not be wise to conclude this essay without touching upon the hardy fernery. But it must be briefly, as this subject would, to do it justice, command one paper alone. If there is room in any garden in which we can make or construct an outdoor rockery, in which we can plant some of the exceedingly handsome species of hardy Ferns, if only a small one, I would say by all means have one, as nothing can give a greater charm to a garden of any size, especially when we consider that some of the hardy Ferns will grow in places in which the majority of other plants would surely die. The first conditions as to the site are, however, protection from wind and provision for shade, these being essential to the majority of Ferns. The mode of construction is entirely a matter of taste, fancy, and space. The material for construction, where expense is not a primary object, should be the same as that recommended for the indoor rockery, namely, tufa. An excellent substitute may, however, be found in burrs from the brick kiln. These may be washed over with some cement and cowdung well mixed together with water, which will make an excellent imitation of stone. Elaborate and minute imitations of actual rock are rarely so effectively done that the illusion is perfect, and if really so, it is in part covered by the foliage when devoted to Ferns. The size must determine the mode of building, and whether we shall require large masses of stone or small. In building let each block recede instead of overhanging, because in this way the plants in the fissures receive the benefit of the rain or dew which falls, and this will be an advantage.

SOIL.—The soil for hardy Ferns should, as with other plants, be properly prepared. If peat, loam, leaf soil, and sand can be obtained, a mixture should be used, or peat may be used alone—it will well repay for its cost. If neither course be possible, mix a little of these ingredients with some good garden soil, but for the small varieties of Ferns I recommend using a good compost. In any case, within doors or without, a rockery for Ferns should contain a good body of soil; if there is any stint there will be no prosperity.

PLANTING.—This, as well as the construction, is a matter of individual taste or fancy. If the rockery is on a large scale, and large masses of it are presented to the eye at one view, either very large individual plants or a group of each of some of the largest kinds may be necessary to secure masses of foliage in character with the massive construction. In arranging the plants generally the evergreen and deciduous kinds should be so planted that when the foliage of the latter dies off for the winter there may still be abundant objects of interest throughout the whole.

The seasons for planting a fernery are the spring and early summer months before the annual growth is far advanced, and the planting should be done carefully and firmly. They must be carefully attended to in watering, especially during hot dry weather. If they can either be syringed or watered with a hose in the evening of hot dry days it will do them good. A little practice will soon enable anyone interested in the matter to master the details of the cultivation of these plants in the garden.

SELECTION.—In giving a selection I shall confine myself to a few varieties that I have seen do well and give satisfaction: *Allosorus crispus*, *Adiantum pedatum* (deciduous), *Asplenium Adiantum nigrum*, *A. marinum*, *Athyrium Filix-femina* (Lady Fern) and its handsome varieties—these are all deciduous; *Blechnum spicant*, *B. s. cristatum*, *Ceterach officinarum*, *Lastrea æmula*, *L. grandiceps*, *L. Filix-mas* (male Fern)—these are strong robust evergreen Ferns and very handsome; *Osmunda regalis* (deciduous) requires plenty of water when growing; *Polypodium vulgare* and its beautiful varieties, *Polystichum aculeatum*, *P. angulare*, *P. a. cristatum*, *P. a. grandiceps*, *P. lonchitis* and *Scolopendrium vulgare*, of this also there are some exceedingly handsome varieties.

MARKET GARDENING IN THE SCILLY ISLANDS.

It is a curious instance of the changes of agricultural conditions caused by foreign competition and the opening up of new sources of

supply, that although the growth for export of early Potatoes is still an important industry of the Scilly Islands, it has now been superseded in the financial esteem of the farmers by the cultivation of flowers for Covent Garden Market. Last season no less than 200 tons of cut flowers were forwarded from the Islands to the various markets of England and Scotland by the steamer which plies between Scilly and Penzance, and in a single week of February in this year 20 tons were despatched. Nearly 100 acres in the Islands are devoted to the culture of the Narcissi, and the capital invested in this trade is reckoned at something like £250,000. The following details—collected during a recent visit—of the cultivation of the soil in the Islands, as at present conducted, will, it is hoped, prove of general interest.

General husbandry was never very successful in the Scilly Islands, for up to the time of Mr. Augustus Smith's proprietorship the farmers held their land on such precarious tenure that they refrained from all improvements, and contented themselves with growing a little corn and a few Potatoes, and breeding inferior cattle and sheep. Notwithstanding the introduction subsequently of improved cattle, securer tenures, and larger holdings, farming, strictly so called, failed of ultimate success. It was then that market gardening stepped in, and for a long time proved exceedingly remunerative. The cultivation of the early Potato was one of the chief supports and occupations of the Scillonians, and every available space was planted with it.

It was while the growers were in the flood-tide of this prosperity that the Lord Proprietor, looking ahead, recommended the Scillonians to turn part of their attention to the cultivation of the flowers which grew on the islands for Covent Garden Market. The majority were disinclined to give up Potatoes for flowers in ever so small a degree; but one farmer thought over Mr. Smith's suggestion, and collected some of the flowers growing on his ground. He sent the little lot to London, on which he cleared 2s. 6d.; and this was the beginning of the floriculture in Scilly, which has now reached giant proportions.

Just about the time that the last report of these Islands was printed in the Journal the Scillonians were brought more into touch with the mainland by means of a steamer which was started to run between the Islands and Penzance, and by means of a telegraphic cable between the two. Thus the Potatoes found a quick market, and the growers were kept informed of current prices. For the first fruits of the Potato crop—generally in May—as much as 1s. 6d. a pound has been received. Gradually the inhabitants were encouraged and stimulated to grow various new vegetables, and Asparagus, Seakale, Parsley, and Tomatoes were added to those sent to market.

The growers had their anxieties and troubles then even as now. The exposed situation of the Islands, and the lack of woods and trees to provide natural protection to their fields from the biting winds and heavy gales which sweep over the land, gave them many a night in "the open," keeping up fires round the fields to preserve the budding Potatoes.

It was this need of protection to their plants which caused them to supersede the loose stone divisions of land by planting Laurel, Escallonia, and other picturesque shrubs for hedges. This planting of hedges was, indeed, the foundation and preparation of the new development in the farming of the Islands. To-day the land is no longer given up solely to the growing of Potatoes, Parsley, Asparagus, and Seakale, for a large proportion is devoted to floriculture—a combination which has answered well in every way. The result may be seen in the absence of poverty, in the quiet unobtrusive independence of the people, in the improved outhouses on the farms, and in the possession of better farming implements. The people are neither so rich nor so poor as they have been (it was a proverb, "Either a feast or a famine in Scilly"), their life is freer of excitement than it used to be, and they seem to have fallen into the happy medium of comfort and content.

Last season the following supplies were sent from the Islands to the various markets on the mainland by the steamer plying between Scilly and Penzance:—

- 46,000 pads of fish (a pad is 50).
- 200 tons of flowers.
- 800 tons of Potatoes + 230 tons sent by boats and smacks.
- 150 tons of other vegetables.
- 3 tons of Seakale, from St. Mary's alone.
- 5 tons of Tomatoes.

The expense of carriage is 11s. per ewt. to Scotland, and 7s. 6d. to Covent Garden. The salesman's charge is 10 per cent, if he supplies boxes, and 7½ if he does not.

It would be difficult to find land anywhere so bursting with life and growth as that of the Scilly Islands; and were it not for the occasional want of rain, and the too great prevalence of gales, there would be no limit to its productiveness. The temperature is never intensely hot in summer, nor intensely cold in winter.

The soil of the Islands is composed mostly of decomposed granite and peat; here and there it is as black as soot. The very rich land seems to run in veins, while other has good rich soil for some distance down, till it touches the cold white clay. The soil is very loose, and drinks greedily every drop of rain. It will not refuse "a shower every day, and two on Sundays." The rainfall is quite different here from the mainland. The average in Middlesex is 24 inches, in Scilly 31 inches, and in Cornwall it is 44 inches. Scilly would be glad of an inch a week. The soil, good as it is, lacks phosphate of lime and ammonia,

both of which can, fortunately, be supplied in a great measure by the seaweed manure.

The method here of making seaweed manure is to make a bottom or foundation of earth. On this the seaweed is spread, and covered with a layer of sand. After a month or two the juices have penetrated the earth, which is then ready to be carted away, and laid on the soil. The people use a peculiar-looking instrument for cutting through the seaweed manure. It has a blade 8 inches long and 7 inches wide. If the seaweed be driven in when Potatoes are to be planted it is put straight on the earth, and often worked in by the plough, and the Potatoes planted in at once. Then the soil and seaweed mixed are turned over on the Potatoes. Potatoes planted in fresh seaweed are waxy. In Scilly the Potatoes are planted much nearer the surface than on the mainland. If they were so planted on the "main" they would be destroyed by frost.

Out of the 3560 acres—which are the figures of the last Government survey—2242 are tillable or improvable.

Every farmer is more or less a flower farmer, but the larger ones grow also Potatoes, Seakale, Asparagus, and Tomatoes for the markets, as well as flowers. They keep a small number of cattle and sheep and grow corn, but only sufficient for home use. They make their own butter and keep poultry. But of all these last nothing is exported—they have sufficient only for home consumption. The butter is exquisite, and would be gladly bought on the mainland if it could be spared; and the same may be said of the fruit, which is grown principally at Rocky Hill and Holy Vale. It is excellent, but only sufficient for home use, and, moreover, the Apples are too mellow to bear packing.

St. Mary's has an area of 1527 acres, most of which is under cultivation. The largest farmer owns 70 acres of cultivated land. Eight of these are devoted to flowers and 10 to Potatoes. He grows no other vegetable but a large quantity of Mangels. He owns twenty-eight head of cattle, three horses, and fourteen sheep.

The cultivation of flowers has not reduced the amount of Potatoes grown so much as one might think, and for this reason—every foot of land formerly waste capable of cultivation is laid under tribute for the flowers.

An average-sized farm is held by a gentleman who farms 36 acres of tilled land, and 105 acres of common or waste land. Four or 5 acres are planted with flowers, and about 7 with Potatoes. He has twenty horned cattle and twenty sheep. He grows enough corn to feed the cattle, and the grazing ground is contained in the 36 acres. Seaweed is, he considers, by far the best manure for Asparagus. Tomatoes have so gone down in price that 9d. per pound is the price during December, January, and February. In planting he would use about 25 ewt. of seed Potatoes to an acre, and he would consider between 4 and 5 tons an acre a good return. His preparation of the ground for receiving Potatoes is to well press it and plough it, and dress it twice with seaweed and compost, the latter consisting of road scrapings, earth, and "anything good." It is then ploughed down, scarified with a cultivator, and left to rest. Sometimes artificial manure is given, and a small quantity of guano is imported. On the waste lands an immense quantity of Ferns grow, which, being cut, make excellent beds for the cattle, and when they have served this purpose they form a capital manure. May and June are the great months for sending Potatoes to market, though, owing to the mildness of the winter, Potatoes planted in December are often drawn again in March, when there is a good sale for them. After Potatoes he gets a fine crop of Mangel.

Seakale is largely grown on the Islands, and sent to the London, Birmingham, and Manchester markets. It is grown in the open air, and blanched in the same way as Celery, with the exception that it is planted on the surface instead of in the trenches. Seakale would be by far the most remunerative crop, and if only they could ensure 3d. or 4d. a pound for it the Scillonians would go into its cultivation very largely. It requires no manure, but wants a light soil. At Tresco a great quantity is grown. The cost per acre is £30 or £40, the return £70 or £80.

The island of Tresco, though only twenty minutes' distance by boat (in fine weather), is much warmer than St. Mary's, because of the sand all round it. Mr. Dorrien Smith's farm at Tresco is essentially a model farm. He spares neither expense nor trouble, and when a successful result is attained he shares it with his tenants. He uses about 30 tons of seed Potatoes for planting. Twenty-five to 30 acres are planted with Potatoes. Where possible they are planted on slopes, so as to escape the wind, and the order of planting is "six rows, one miss." The "miss" is well manured, and later on is turned up and spread over the six rows. Three tons of Seakale and 5 tons of Tomatoes were sent from here last year. From 17 to 20 acres are devoted to flowers. Mr. Smith is experimenting upon a parcel of land, dividing it into four, dressing one part with fish manure, one with farmyard manure, the third with seaweed, and leaving the fourth unmanured. He has twenty Channel Islands cattle and about 100 pigs. The food for the last is cut up, and cooked in a large boiler. The dried Fern makes good litter for pigs and cattle.

All sorts of fences are tried on this farm for the protection of flowers and vegetables. The rush fences are too opaque. The shrubs require great attention, and occupy valuable space; but the open palings of wood protect, while they permit the sun to play through.

Of all the islands St. Martin's produces the most Potatoes, while some of the earliest come from Bryher.—E. BREWER (*Journal of the Royal Agricultural Society.*)

NATIONAL AURICULA SOCIETY.

NORTHERN DIVISION.

THE Exhibition of the Northern Section of this was held on April 29th in the New Town Hall, Manchester. It was a full and brilliant Show, with many fine examples of all the classes of the florist's Auricula. The competition was keen, and the competitors included some fresh growers, always a feature of interest and of promise for the future. Considering the coldness of April and its east winds there were many more flowers exhibited than were expected, and all the classes were well filled.

The following is the complete list of the prizewinners, with names of the winning flowers:—

Six Auriculas, dissimilar.—First, Rev. F. D. Horner, Burton-in-Lonsdale, with Magpie (Horner), Miranda (Horner), Rev. F. D. Horner (Simonite), Monarch (Horner), Mrs. A. Potts (Barlow), G. Lightbody (Headly). Second, Mr. T. Lord, Todmorden, with Rev. F. D. Horner (Simonite), G. Lightbody, R. Headly (Lightbody), Acme (Read), Mrs. A. Potts, Brunette (Pohlman). Third, Mrs. Kyrke Penson, Ludlow, with Prince of Greens (Traill), G. Lightbody, John Simonite (Walker), Heather Bell (Simonite), Mrs. Dodwell (Woodhead), Prudence (Kyrke Penson). Fourth, Mr. B. Simonite, Sheffield, with Heatherbell, Heroine (Horner), Dr. Hardy (Simonite), Mr. Hannaford (Simonite), and two seedlings unnamed. Fifth, Miss Woodhead, Hipperholme, Halifax, with Mrs. Dodswell, Acme, Black Bess (Woodhead), Prince of Greens, Talisman (Simonite), G. Rudd (Woodhead). Sixth, Mr. Jos. Butterworth, with Lancashire Hero (Lancashire), Ellen Lancaster (Pohlman), Acme, A. Meiklejohn (Kay), Chas. Perry (Turner), Lovely Ann (Oliver). Seventh, Mr. Henry Wilson, Halifax, with Prince of Greens, G. Rudd, Lancashire Hero, John Simonite, Mr. A. Potts, G. Lightbody.

Four Auriculas, dissimilar.—First, Rev. F. D. Horner, with Magpie, G. Lightbody, Rev. F. D. Horner, Mrs. A. Potts. Second, Mrs. Irving Hind, Halifax, with Acme, A. Meiklejohn, Chas. Perry, Mayflower (Traill). Third, Mr. T. Lord, with G. Lightbody, Brunette, Mrs. Dodwell, Rev. F. D. Horner. Fourth, Mr. Hy. Wilson, with G. Lightbody, John Simonite, Mrs. A. Potts, Prince of Greens. Fifth, Miss Woodhead, with Acme, Black Bess, Rachael (Woodhead), Imperator (Litton). Sixth, Mr. W. Taylor, Middleton, with Acme, A. Meiklejohn, Chas. Perry, Mayflower. Seventh, Mrs. Kyrke Penson, with G. Lightbody, John Simonite, Rev. F. D. Horner, Negro (Mellor).

Two Auriculas, dissimilar.—First, Mr. E. Shepley, Middleton, with A. Meiklejohn and Mayflower. Second, Mr. Geo. Middleton, Prestwick, with Beauty (Traill) and Mrs. A. Potts. Third, Mr. E. Shaw, Moston, with A. Meiklejohn and a seedling. Fourth, Mr. J. Beswick, Middleton, with Dr. Horner (Rudd) and Lovely Ann.

Auriculas, pairs for maiden growers.—First, Mr. Jas. Wood, with Prince of Greens and Frank Simonite (Simonite). Second, Mr. Irving Hind, with John Simonite and Lancashire Hero. Third, Mr. E. Walker, Leek, with G. Lightbody and Negro. Fourth, Mr. G. Thornley, with Chas. Perry and Traill's Beauty.

Premier Auricula of the Exhibition.—Rev. F. D. Horner, with Magpie (Horner), white-edged.

Single plants, green-edged.—Premium, Mr. B. Simonite, with Mr. Hannaford. First, Rev. F. D. Horner, with Attraction (Horner). Second, Rev. F. D. Horner, with Monarch. Third, Mr. B. Simonite, with Thalia (Simonite). Fourth, Rev. F. D. Horner, with Rev. F. D. Horner. Fifth, Mr. B. Simonite, with seedling. Sixth, Mrs. Kyrke Penson, with Col. Taylor (Leigh). Seventh, Mr. Hy. Wilson, with Prince of Greens. Eighth, Mr. W. Taylor, with Talisman.

Grey edged.—Premium, Mr. T. Lord, with G. Lightbody. First, Mr. T. Lord, with G. Lightbody. Second, Mr. J. Butterworth, with A. Meiklejohn. Third, Mrs. Kyrke Penson, with seedling. Fourth, Mr. B. Simonite, with Agamemnon (Horner). Fifth, Miss Woodhead, with Rachel. Sixth, Miss Woodhead, with G. Rudd. Seventh, Mr. E. Shepley, with Lancashire Hero. Eighth, Mr. W. Barnfather Leek, with Dr. Horner.

White edged.—Premium, Rev. F. D. Horner, with Magpie. First, Mr. E. Shepley, with Acme. Second, Mr. T. Lord, with John Simonite. Third, Rev. F. D. Horner, with Magpie. Fourth, Mr. E. Shaw, with True Briton. Fifth, Rev. F. D. Horner, with Reliance (Mellor). Sixth, Mrs. Kyrke Penson, with Dr. Kidd (Douglas). Seventh, Mr. W. Taylor, with Beauty (Traill's). Eighth, Mr. Hy. Wilson, with Mrs. Dodwell.

Selfs.—Premium, Rev. F. D. Horner, with Laura (Horner). First, Rev. F. D. Horner, with Dimple (Horner). Second, Rev. F. D. Horner, with Lælia (Horner). Third, Rev. F. D. Horner, with Lynette (Horner). Fourth, Mr. B. Simonite, with Heroine (Horner). Fifth, Rev. F. D. Horner, with Scarlet Gem (Horner). Sixth, Mrs. Kyrke Penson, with Prudence (Kyrke Penson). Seventh, Mr. E. Shaw, with seedling. Eighth, Mr. T. Lord, with Black Bess.

Alpines, shaded, four dissimilar.—First, Mr. J. Beswick, Middleton, with Emin and three seedlings. Second, Mr. H. Geggie, Bury, with Diadem and three seedlings. Third, Mr. J. Butterworth, with Victoria, Diadem, Almyra, and seedling. Fourth, Mr. E. Shaw, with Victoria, Mrs. Ball, Diadem, and Terminal. Fifth, S. Barlow, Esq., Stakehill, with Diadem, Prior, Mrs. Llewelyn, and seedling. Sixth, Mr. Wm. Taylor, with Diadem, Mrs. Dodwell, Nimrod, and John Leech. Seventh, Mr. T. Stelfox, Stalybridge, with Victoria, Mrs. Dodwell, Racer, and seedling.

Single plants (yellow centre).—Premium, Mr. J. Clements Harborne, with Unique. First, Mr. J. Clements Harborne, with Mrs. Ball. Second,

S. Barlow, Esq., with seedling. Third, Mr. J. Butterworth, with Unique. Fourth, Mr. Beswick. Fifth, S. Barlow, Esq., with Mr. Llewelyn. (White centre).—Premium, Mr. J. Beswick, with seedling. First, Mr. J. Beswick, with seedling. Second, Mr. J. Butterworth, Victoria. Third, Mr. J. Beswick, seedling. Fourth, Mr. J. Clements, Minnie Turner. Fifth, Mr. J. Beswick, seedling.

Polyanthus, black grounds, three dissimilar.—First, Mr. Jos. Butterworth, with Cheshire Favourite, Exile, and seedling. Second, Mr. J. Beswick, with Cheshire Favourite, Lancashire Hero, and Exile. Third, Mr. A. Oldham, Middleton, with three seedlings. Fourth, Mr. G. Thornley, with Prince Regent, Exile, and Cheshire Favourite. Fifth, Wm. Brocklebank, Esq., Didsbury, with Black Cap, Black Knight, and Jubilee. Sixth, S. Barlow, Esq., with Cheshire Favourite, Exile, and John Bright.

Polyanthus, red grounds, three dissimilar.—First, Mr. J. Butterworth, with George IV., Prince Regent, and seedling. Second, Mr. G. Thornley, with Lancer, George IV., and seedling. Third, Wm. Brocklebank, Esq., with Ensign, George IV., and Regina. Fourth, Mr. W. Taylor, with Lancer, Prince Regent, and George IV. Fifth, Mr. J. Beswick, with Lancer, seedling, and Prince Regent.

Polyanthus, light plants, black grounds.—Premium, Mr. J. Butterworth, with Exile. First, Wm. Brockbank, Esq., with Black Knight. Second, Mr. A. Oldham, with seedling. Third, Mr. J. Butterworth, with Cheshire Favourite. Fourth, Wm. Brockbank, Esq., with Jubilee. Fifth, Mr. G. Thornley, with Exile. Sixth, Mr. A. Oldham, with seedling. Seventh, Mr. A. Oldham, with seedling.

Polyanthus, single plants, red grounds.—Premium, Mr. J. Butterworth, with George IV. First, Mr. J. Butterworth, with George IV. Second, Mr. J. Butterworth, with Prince Regent. Third, Mr. A. Oldham, with seedling. Fourth, Mr. J. Butterworth, with Lancer. Fifth, S. Barlow, Esq., with Sydney Smith. Sixth, Mr. G. Thornley, with seedling.

Twelve fancy Auriculas.—First, S. Barlow, Esq. Twelve fancy Polyanthus.—First, S. Barlow, Esq. Twelve fancy Auriculas.—First, S. Barlow, Esq.



FRUIT FORCING.

VINES.—*Early Houses.*—Red spider is the bane of early forcing. It is hardly possible to escape visitation by this pest, therefore where it has obtained a footing prompt measures must be adopted for its destruction. Syringing is perhaps most effectual, as water is the great cleanser of plants, but its application to Grapes after they are advanced in colouring is dangerous, as the water, no matter how clear, is liable to leave a deposit upon the berries. Sponging the leaves, though an excellent mode of preventing the spread of the pest, and if taken in time an effectual one, yet is in most cases resorted to so late as to render it but a partial remedy by a tedious operation. The application of sulphur to the pipes in a judicious manner is the most effectual preventive. Flowers of sulphur mixed with skim milk to the consistency of cream and applied with a brush to the pipes when heated to between 180° to 200°, maintaining the pipes at the temperature indicated for an hour, and then the heat allowed to fall to the ordinary temperature, will kill all the pests existing, but it may be necessary to repeat it at intervals of a week or ten days in order to destroy those emerging from the eggs. Choose a calm evening, and in bad cases repeat the process. Take care not to overheat the pipes nor to give an overdose, or the skins of such varieties as Frontignans and Muscats will be seriously affected, especially those but partially ripened. Where fermenting materials and judicious ammoniacal vapour employed during growth red spider does not prove very troublesome. Fermenting material on outside borders will have become heavy and cold; a portion should be removed, leaving sufficient to avoid giving a sudden check. Early Grapes that are ripe will only require enough fire heat to maintain a circulation of dry air, allowing the temperature to fall to 60° at night.

Vines Started at the New Year.—The Grapes are commencing to colour. Inside borders must have due supplies of water or liquid manure in a tepid state, the quantity being such as to thoroughly moisten the borders to their depth and give a mulch of short material, but no great means should as yet be employed to produce a dry condition of the atmosphere, as the Grapes will swell considerably in ripening. A good moisture must be maintained in the early stages of ripening, sprinkling the house in the early part of the day and at closing time, a little ventilation being provided constantly to induce a change of air and prevent the deposition of moisture on the berries. A warm genial condition of the atmosphere with a circulation of air is essential to insuring thoroughly swelled berries. Maintain the temperature at 70° to 75° by day from artificial means, and 80° to 85° through the day from sun heat, advancing in the early afternoon to 90° or 95°, falling with the declining sun or light to a night temperature of 60° to 65°, 5° more by day and night being necessary for Muscats. As the fruit

advances in colouring the moisture should be gradually reduced and the ventilation increased, but there must not be any diminution of the temperature until the Grapes are fully ripe. Grapes that are liable to crack, such as Madresfield Court, may, when ripening commences, have the needful supplies of water or liquid manure, and then have the inside border mulched with 4 to 6 inches thickness of dry material, which with early ventilation insures this remarkably fine Grape arriving at perfection.

Succession Houses.—Thinning, disbudding, stopping, and tying must be attended to as occasion requires, proceeding on lines indicated in former calendars. Especially let all superfluous bunches be removed as soon as the number to be left on a Vine is decided. Examine the borders of all succession houses at least once a week, and when dry supply water freely. Inside borders will take almost any quantity of water after the Vines are in full foliage, and with a full crop of Grapes liquid manure should be applied at every alternate watering. Outside borders will not as yet require water.

Late Houses.—Late Vines progressing rapidly must be tied and stopped as soon as they have made sufficient growth to cover the trellis with foliage. Admit air freely on all favourable occasions, as there is the greatest benefit in well developed foliage, stout and firm in texture, as upon these and their continuance in health depends entirely the swelling and maturing of the crop, particularly the finishing or colouring process. Every advantage, therefore, should be taken of sun heat to increase the ventilation early in the day, but close early, excessive fire heat being injurious; avoid a vitiated atmosphere.

Newly Planted Vines.—With advancing growth, an evidence that the roots are active, close attention will need to be given to the roots to see that they do not suffer from over-dryness. Allow all the wood to remain that can be exposed to light, but supernumeraries intended for fruiting next year should be confined to one rod or cane, and the laterals pinched at the first joint, stopping the cane when it has made about 8 feet of growth.

Vines in Greenhouses and Unheated Houses.—With rapid progress as the Vines are now making the growths will require disbudding, stopping, and tying. One shoot is sufficient to each spur unless they are wide apart, when two may be left, but there must be scrupulous attention to prevent overcrowding; every leaf must have exposure to light and air. Reserve those that show the best bunches, rubbing the others off. Stop two joints beyond the bunch; but rather than crowd the foliage stop one joint beyond the bunch, or even level with it. Tie down the shoots carefully and gradually. Old Vines sometimes do not fruit freely on spurs, being weak. It is best to lay in shoots from the base and along the rods at intervals of 2 to 3 feet, which will increase root action, the Vines attaining increased vigour, and longer pruning will usually afford better crops of Grapes; indeed, old Vines with fresh canes bear excellently. Apply a dressing of artificial manure to the border, a couple of ounces per square yard, and point it in very lightly. Inside borders may be given water or liquid manure, when dry a thorough soaking, and a mulching of short rather fresh manure will, by keeping the surface moist, encourage active roots.

MELONS.—*Early Plants.*—Directly the fruit begins ripening lessen the supply of water at the roots, but not so as to distress the plants, for if the foliage has been kept clean and the roots in good condition a second crop of fruit may be had. Atmospheric moisture should be withheld, and a circulation of dry air ensured, increasing the temperature to 70° or 75° artificially, and 80° to 90° with sun heat. Cut the fruits before they are very ripe, keeping them in a fruit room for two or three days, or until they are in proper condition to be sent to the table. Cracked fruits are produced by a close and moist atmosphere, with too much moisture at the roots, which induces an excess of sap. If any fruits show a tendency to crack cut the shoots about halfway through with a knife a few inches below the fruit, and diminish the supply of water at the roots and in the atmosphere, leaving a little ventilation constantly to prevent moisture condensing on the fruit.

Successional Plants.—Continue to fertilise the flowers when fully expanded, the atmosphere being kept rather drier and warmer, and ventilation attended to early, with a little constantly if there is danger of moisture condensing on the blossoms. Stop the shoots one or two joints beyond the fruit at the time the fertilisation is done. To secure a full crop take care to have a number of fruits on individual plants in the same stage of growth. Earth up the plants with some rather strong and rich loam after the fruits begin to swell, ramming it down firmly, placing a little fresh lime around the collar to prevent canker. Plants swelling their fruits should be syringed freely in hot weather about 3 P.M., damping the floor several times a day, and in the evening sprinkle available surfaces with liquid manure or guano water, 1 lb. dissolved in 20 gallons. Shade only to prevent flagging. Ventilate freely in favourable weather, commencing from 75° to 80°, increasing or decreasing it through the day as may be necessary, maintaining a day temperature of 80° to 85°, or 90° with sun heat, closing between 80° and 85°, and if an advance is after closing made to 90° or 95° it will materially assist the fruit in swelling and lessen the necessity for fire heat at night, but it must be accompanied by plenty of atmospheric moisture. If thrips appear fumigate on two or three consecutive evenings, taking care to have the foliage dry, and for red spider dress the hot-water pipes with flowers of sulphur.

Train out the growths in pits and frames. Still maintain a good bottom heat by linings, and employ thick night coverings, as the nights are yet cold. Sow seed for raising plants to put out in pits and frames

as they become cleared of bedding plants, early Potatoes, &c., potting the young plants as required.

Tomatoes in Houses after Bedding Plants.—Structures that are light and airy may be profitably utilised for these plants. They do well in 10-inch pots, a single plant in each. Drain the pots efficiently, place a layer of rough pieces of turf over the crocks, and then turn out the plants, using turfy loam with about a fourth of well decomposed manure. A considerable space should be left in the pot for fresh compost, additions being made as the plants advance in growth, and feeding with liquid manure will secure an abundant crop of fruit. Train the plants as single condons to wires 9 inches from the glass, removing all laterals or side shoots, but being careful to preserve a leader. The plants will have fruit from the first show at about every second joint, and the lead should not be stopped unless the limit of the trellis is reached, then remove growth as it appears. Shorten the leaves about a third of their length. The plants may be 12 to 18 inches apart. Keep the house rather close until the plants are established. Ventilate a little at 65°, increase it at 75°, and above that ventilate freely. Close early, so as to run up to 80° or 85°, which will enable the grower to dispense with fire heat after the middle of the month.

PLANT HOUSES.

Epacris—Plants that flowered early may be repotted if they need more root room. Drain the pots carefully, and the soil must consist of good peat and sand. Do not disturb the old roots further than is necessary in removing the drainage. In potting press the soil firm, and be careful not to bury the collar of the plant lower than usual. If the plants have been carefully hardened they may be placed at once in cold frames. For the first ten days or a fortnight keep the frames close, and dew the plants with the syringe once or twice on fine days. Close the frame early in the afternoon. The plants must be watered carefully for some time after they are repotted. Later plants may be kept close, and syringed freely until they start into growth. A close moist atmosphere is beneficial at first, but as soon as they are well started air must be gradually admitted.

Erica hyemalis.—Plants that have commenced active growth may be placed in cold frames. Be careful not to crowd them, or the lower foliage will turn brown and eventually fall. If the plants need repotting do it at once. Peat and sand should be used for a compost, and pressed firmly round the balls, which should not be disturbed beyond the removal of the drainage. Keep the frames the same as advised for *Epacris*, and then admit air carefully at first, and increase it until liberal ventilation can be given. A firm sturdy growth should be aimed at if the plants are to flower freely.

Erica gracilis.—This Heath is very liable to mildew if the plants are subjected to a close confined atmosphere. Directly any trace is observed dew them with the syringe and dust the affected parts with powdered sulphur. These plants may be potted the same as advised for *E. hyemalis*, but the smallest possible shift should be given. Do not attempt to keep these close after potting, but place them in frame and admit air abundantly.

Cytisus racemosus.—Plants that have flowered may be well pruned and placed in the greenhouse until they start again into growth. They may be syringed once or twice daily, and repotted if they need it. Young bushy specimens in small pots may be transferred into 5-inch pots, a suitable size for decorative purposes. Young plants that are still in store pots may be potted singly into 2-inch size. Grow these cool, and pinch their shoots from time to time as they need it. Small standards with stems 18 inches high are very effective; these can be run up until the desired length has been attained before pinching is practised. They do well in a compost of good loam, one-seventh of decayed manure and sand. A little leaf soil may be used with advantage for those placed in their first pots.

THE BEE-KEEPER.

NOTES ON BEES.

THE WEATHER.

THE cold wintry weather which prevailed from the 7th to 29th April has given way to lovely summer-like weather, a pleasant change for everything depending upon it, the mean temperature rising from 36½ to 60° Fahr. The mildness induced me to take a ramble amongst fruit growers and bee-keepers. Notwithstanding the severity and ungenial weather in April there is no reason to suspect any damage to the fruit blossom.

Bees had a severe trial, and many were lost the last week of the three, and I learned that many weakish hives succumbed which but for the ungenial weather would have done well. After breeding commences briskly bees cannot defend themselves against a spell of cold so well as they can do before breeding against a zero temperature. The moral is obvious. Keep your hives protected so that they are little affected internally by extremes in tempera-

ture, and never alter the doorway until the bees show signs of performing this themselves. Let Nature take her proper course, and the bee-keeper provide in September all that is necessary to tide the bees over till May, and by that time nothing will be required to be done except to hive swarms. My visit to these apiaries was on the 1st of May, and many hives were crowding out, and with favourable weather swarming cannot be many days delayed. All districts may not be so early, but the same course of management applies to all.

ABSCONDING SWARMS.

As is usually the case these have been prevalent this spring. I have had a number of queens of these "fly aways" sent me, and in every case, as I have previously found, the queen was defective. I believe that cold has to do with this, and the term "hunger swarm" is an improper one.

QUEENLESS HIVES.

These appear to be numerous, and this defective state of matters is, in most cases, entirely due to the bee-keepers themselves by joining swarms without proper precautions to protect the best queens from harm, or carelessness in their manipulations, allowing stranger bees to enter. Virgin queens are also present from the same or similar causes, being raised at an improper season, and inaccurate instructions may fertile workers and imperfect queens be traced. Bee-keeping instructions, like other rural occupations, have been largely given by inexperienced persons from the writings of others, much to the discredit of themselves and to the loss of the unsuspecting novice. The wholesale plagiarism noticed lately is good proof of this. I send you by same post as this a journal containing an article of mine with *nom de plume* attached, but I think it scarcely fair to copy so largely without giving the source whence it was obtained.* An amusing case of plagiarism occurred some time since. An American paper published an article of mine, a person I had to call to order for his mis-statements copied it, and it appeared in the *Farming World* as original.

FOREIGN RACES OF BEES.

The Punic bees are still giving satisfaction, but are not yet far enough advanced to be put to a proper test. The Cyprian crosses that have given a large surplus of honey every year for thirteen years, and that without feeding, are storing honey more rapidly than any other variety. Carniolians are strong, and they, with the crossed Syrians, are ready for swarming. I saw lately a swarm of pure Ligurians supplied by Messrs. G. Neighbour & Sons, which for a time were rare, owing to the stupidity of certain individuals setting forth that beauty and industry went together, and encouraged the importation of Ligurians crossed with Cyprian or Syrian blood. We trust this practice has ceased. The foregoing hints will perhaps assist the bee-keeping readers. A future article will further enable them how to prepare for the Heather harvest.—A LANARKSHIRE BEE-KEEPER.

BEEES IN THE NORTH.

THE prospect as regards East Yorkshire is cheering. The warm weather, with the Willow and Peach flowers, have rendered the bees busy. The Pears and Apples have also helped; the Thorns and Sycamore promise well. All we want is warm sunny weather, and our hives being strong the honey harvest of 1890 is assured. Spring dwindling is unknown to me this year. I went to winter quarters with twenty hives; these are all alive and doing well, and vigorous queens are filling the vacant cells with eggs. "A L. B. K." speaks of supering in the third and fourth week of June (page 329), but I like my bees to be ready for supers by the 12th of May, or before that date if possible. If I deferred supering until the third week of June the honey harvest would be nearly over. As before, I shall work my bees on the non-swarmer system, as it suits me best, and with young queens, large hives, plenty of room at the right time, the swarming fever is reduced to a minimum. The non-swarmer system I would recommend where the honey flow is of short duration and the bee-keeper's time limited. On the other hand, where the honey season is of longer duration the swarming system answers well. The honey season is over here by the 12th of July or nearly so. The non-swarmer system has failed with some. Why? Simply because the requirements of the bees were not met at the proper time. I have worked my bees on the non-swarmer system for some time, and have no cause for regret, and I know others that have done the same. This is scouted by some able bee-keepers, but facts and experience teach me in most cases swarming may be prevented, allowing an exception to every rule. However, such has been the experience of—A HOWDENSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

B. S. Williams & Son, Victoria and Paradise Nursery, Upper Holloway, London, N.—*New and General Plant Catalogue, 1890 (illustrated).*

Thomas S. Warr, Hale Farm Nurseries, Tottenham, London.—*Catalogue of Choice Dahlias.*



* * * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Garden Hose (W. G.).—Hose that is advertised periodically in the *Journal of Horticulture* is exactly suited to your requirements, and all particulars relating to size and price can be obtained from the vendors. The hose must either be attached to a pipe containing a good pressure of water, or to a pump for forcing the water to where it may be required.

Garden Plans (G. M.).—We are unable to say from whom you can get plans such as you need, and there is no work that contains plans suitable to all positions. For laying out a garden properly it is requisite that the site be carefully inspected by a competent person, who can furnish plans showing how the ground can be laid out to the best advantage. There are gentlemen's gardeners in your district who can no doubt prepare plans of gardens.

Peas for Preserving (M. G.).—If we understand your requirements they would have been best met by sowing such a variety as Dillistone's Prolific three months ago. You may or may not obtain a good crop by sowing now, according as the soil and weather may be favourable or otherwise for free growth. A good dwarf-growing, round, green seeded main crop Pea is Pride of the Market. The Peas are a little larger, though sweeter, than the small earlier white round-seeded varieties.

Figs Falling (Fig).—We have no doubt the excessive vigour of the tree is the chief, if not the sole cause of the dropping of the fruit. The border is too rich, and possibly may be deficient in calcareous matter. Much firmer soil with more restricted root action is essential in your case, and only with the leaves fully exposed to the direct action of the sun could the trees be fruit sustaining. We should lift them in the autumn, and add a sixth part of lime rubbish to the soil, making the border as firm as possible. If the soil is deficient in lime, some lime water given at once might act beneficially.

Mildew on Vines (Wet Border).—An excessively wet border would predispose the Vines to attack, inasmuch as the root action could not be free and healthy; the leaf action would then be correspondingly impaired and the sap imperfectly elaborated. Leaf action is similarly impaired by a too close and moist atmosphere, also by sharp currents of air striking directly on the Vines. Any or all these impediments to free sap movement and purification render Vines and plants liable to fungoid attacks, inasmuch as the conditions are favourable to the vegetation of the spores of the parasite.

Bedding Pelargoniums (Oaks, Surrey).—"Autumn cuttings" of these plants cannot be had now. They are plentiful early in August, and that is a good time for inserting them. Vesuvius is a favourite compact growing scarlet variety. John Gibbons is suitable for large beds, and Henry Jacoby, rich crimson, is highly effective and floriferous. Plants from autumn struck cuttings, established in pots, and ready for planting out as soon as the weather is safe, are provided by most nurserymen and florists in the metropolitan district. It is contrary to our rules to recommend any particular dealer, as we could not do this without being unfair to the majority not mentioned.

Marechal Niel Rose (W. S.).—The sooner the pruning is done the better, and the warmer and closer the plant is kept, consistently

* It is most unfair. The paper referred to is published in Edinburgh, and we are surprised that any proprietor of good standing should countenance such practice.—ED.

with the requirements of other plants in the house, the better. Give a liberal supply of very warm water as often as the soil gets somewhat dry; it must not be too wet when there are no leaves on the plant. Syringe once, twice, or thrice a day according to the weather. It will be advisable to let the soil get rather dry before the second pruning, and for a week afterwards, then proceed on the lines above indicated. As growths extend more water will be needed, and all the sun and air possible, while syringing must be reduced as the summer advances, and discontinued in early autumn for the ripening of the wood. Avoid overcrowding of the shoots and foliage, and prevent insect attacks.

Fungus on Gooseberries (F. J.).—The leaves and berries sent are seriously infested with the Gooseberry fungus (*Æcidium cancellatum*). Mr. John Graham, an experienced grower, cleansed his bushes by giving the ground a heavy dressing of lime, and syringing the bushes with the following mixture:—Alum, 1 drachm; tobacco essence, 2 drachms; flowers of sulphur, ½ oz.; common salt, ¾ oz., in 3 gallons of rain water. This was done twice before the expanding of the leaf, and again as soon as the fruit appeared fairly set. The lime destroyed the mycelium in the soil, and the syringing cleared the bark of sporules, the result being clean bushes. You can try the same remedies now, but the attack being so virulent you may not effect a cure by one application, if in one season.

Apples and Pears for Light Loam over Chalk (T. S.).—Dessert Apples:—Irish Peach, Worcester Pearmain, King of the Pippins, Fearn's Pippin, Claygate Pearmain, and Cockle Pippin. Kitchen:—Domino, Warner's King, Golden Noble, Annie Elizabeth, Bramley's Seedling, and New Northern Greening. Of dessert you may also try Cox's Orange Pippin and Golden Duceat; and of kitchen, Colonel Vaughan and Duck's Bill. Of Pears there is little prospect of a succession until May from standards, as the late varieties do not succeed as standards. Doyenné d'Ete, Jargonelle, Williams' Bon Chrétien, Beurré Superfin, Comte de Lamy, Louise Bonne de Jersey, Doyenné du Comice, Marie Louise, Passe Colmar, Knight's Monarch, Winter Nelis, and Bergamotte Esperen give a good succession. For stewing, Catillae, Verulam, and Vicar of Winkfield.

Thuia Lobbi for Screens (G. H.).—Without doubt this is one of the best Conifers for forming ornamental hedges and valuable sheltering screens, though it would be some time before getting tall enough for protecting standard orchard trees. It is very elegant in growth, and retains its bright green colour in winter. It grows freely in good loamy soil, such as is suitable for fruit trees. One row is sufficient for forming a good screen. We know of a number of trees that were planted 6 feet apart all grown together now forming a beautiful hedge 20 feet high and 8 feet through at the base. The distance for planting depends entirely on the size of the trees and whether a close hedge is desired at once. If a space be allowed between the trees equal to their diameter they will soon touch each other, and every alternate one can then be removed if desired to form another screen, or they can be left and trimmed to form a close hedge. You will find much of interest in respect to this fine North American tree in Veitch's "Manual of the Coniferae," in which it is illustrated. There is some confusion regarding its nomenclature. Its correct name is no doubt *Thuia gigantea*, but the Conifer widely known under this name is *Librocedrus decurrens*; but we think the Conifer you inquire about is sold as *Thuia Lobbi* by most nurserymen. It was introduced by Messrs. Veitch & Sons in 1853 through their collector, Mr. William Lobb, hence its name.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (*A. F.*).—*Tritonia crocata*. (*K. E.*).—The specimens were much dried, and we can only guess that 1 is *Cassia corymbosa*, and 2 is *Corydalis lutea*. (*J. B.*).—It is apparently a form of *Cymbidium Parishii*. (*W. W., East Yorks.*).—*Laelia purpurata*. (*W., Reading*).—*Oneidium Marshallianum*. *Tecoma jasminoides* will succeed in a greenhouse, the others named require a stove. (*W. W.*).—*Acer saccharinum*. (*W. H. T.*).—The specimens are good examples of the Jack-a-napes *Polyanthus*. (*A. B., Lincoln*).—The Daffodil appears to be a form of the *N. Johnstoni* type. (*H. P.*).—The *Pelargonium* sport is well variegated, but it is doubtful if it would keep true.

Dimensions of Lanarkshire Hive (S. R.).—As you do not mention which Lanarkshire hive it is, we presume it is the L. D. one. The size of each division is 14 by 14 inside measure, and thickness of wood, five-eighths. This size should be strictly maintained, at least across the frames, nine filling up the space, 1 ½ inch centre to centre, the outside spaces for obvious reasons being a quarter of an inch wider. They are 6 ½ deep over all, but that need not be maintained, but should not be less than 6 inches. The ends or uprights of the frames are three-quarters less, and there is no bottom rail where shallow divisions are used. Queens should be reared from a strong stock that has swarmed in the natural way, and at the proper season, during warm weather, when fertilisation will be effected in the most satisfactory manner.

COVENT GARDEN MARKET.—MAY 7TH.

BUSINESS steady, with good supplies. Prices unaltered.

		s. d.		s. d.		s. d.		s. d.			
Apples, ½ sieve	2	0	to	6	0	Oranges, per 100	4	0	to	9	0
" Nova Scotia and						Peaches, dozen	6	0	to	3	0
" Canada, per barrel	18	0		25	0	Red Currants, per ½ sieve	0	0		0	0
Grapes, New, per lb. ..	4	0		6	0	Black	0	0		0	0
Lemons, case	10	0		15	0	St. Michael Pines, each ..	2	0		6	0
Melons, each	2	0		4	0	Strawberries, per lb. ..	3	0		6	0

VEGETABLES.

		s. d.		s. d.		s. d.		s. d.			
Artichokes, dozen	0	0	to	0	0	Mushrooms, punnet ..	1	6	to	2	0
Asparagus, bundle ..	2	0		4	0	Mustard & Cress, punnet	0	2		0	0
Beans, Kidney, per lb. ..	1	6		0	0	Onions, bushel	3	0		4	0
Beet, Red, dozen	1	0		2	9	Parsley, dozen bunches	2	0		3	0
Brussels Sprouts, ½ sieve	0	0		0	0	Parsnips, dozen	1	0		0	0
Cabbage, dozen	1	6		0	0	Potatoes, per cwt.	3	0		4	0
Carrots, bunch	0	4		0	0	" New	0	2		0	4
Cauliflowers, dozen ..	2	0		4	0	Rhubarb, bundle	0	2		0	0
Celery, bundle	1	0		1	3	Salsify, bundle	1	0		1	6
Coleworts, doz. bunches	2	0		4	0	Scorzoneria, bundle ..	1	6		0	0
Cucumbers, doz.	2	0		3	6	Seakale, per bkt.	1	0		1	3
Endive, dozen	1	0		0	0	Shallots, per lb.	0	3		0	0
Herbs, bunch	0	2		0	0	Spinach, bushel	1	0		2	0
Leeks, bunch	0	2		0	0	Tomatoes, per lb.	1	0		1	6
Lettuce, dozen	0	9		1	3	Turnips, bunch	0	4		0	0

CUT FLOWERS.

		s. d.		s. d.		s. d.		s. d.			
Anemone, dozen bunches	1	0	to	4	0	Maidenhair Fern, dozen					
Arum Lilies, 12 blooms ..	2	0		4	0	bunches	4	0	to	9	0
Azalea, dozen sprays ..	0	6		1	0	Mignonette, 12 bunches ..	2	0		4	0
Bouvardias, bunch	0	6		1	0	" Fr., large bnch	1	6		2	0
Camellias, dozen blooms	1	0		4	0	Narcissus, 12 bunches ..	2	0		6	0
Carunations, 12 blooms ..	1	0		2	0	Pelargonium, 12 trusses	1	0		1	6
Cowslips, dozen bunches	0	6		1	0	" scarlet, 12 bnchs	4	0		6	0
Daffodils, dozen bunches	2	0		6	0	Primroses, dozen bunches	0	4		0	8
Deutzia, per bunch	0	4		0	6	Primula (double) 13 sprays	1	0		1	6
Eucharis, dozen	4	0		6	0	" (single) 12 sprays ..	0	0		0	0
Forget-me-not, doz. buch.	3	0		6	0	Rauunculus, doz. bunches	2	0		4	0
Gardenias, 12 blooms ..	2	0		4	0	Roses (indoor), dozen ..	1	6		3	0
Hyacinths (Dutch), in						" Red, 12 blooms ..	2	0		4	0
boxes each	1	6		3	0	" Tea, white, dozen ..	1	0		3	0
Hyacinths (English), doz.						" Yellow	2	0		4	0
bunches	3	0		6	0	Spiraea, dozen bunches ..	6	0		9	0
Hyacinths (Roman) dozen						Tuberose, 12 blooms ..	1	6		2	0
sprays	0	0		0	0	Tulips (Eng.), doz. bnch.	2	0		4	0
Lapageria, 12 blooms ..	2	0		4	0	Violets, dozen bunches ..	1	0		2	0
Lilium, various, 12 blms.	1	0		3	0	" French, per bunch	1	0		2	0
" longiflorum, 12 blms.	4	0		6	0	" Parme, per bunch	3	6		5	0
Lily of the Valley, dozen						Wallflowers, doz. bunches	2	0		4	0
sprays	0	6		1	0	White Lilac, French, per					
Marguerites, 12 bunches	2	0		6	0	bunch	4	0		5	0

PLANTS IN POTS.

		s. d.		s. d.		s. d.		s. d.			
Araha Sieboldi, dozen ..	6	0	to	12	0	Ficus elastica, each ..	1	6	to	7	0
Arum Lilies, per dozen ..	8	0		12	0	Foliage plants, var., each	2	0		10	0
Arbor Vita (golden) doz.	6	0		4	0	Geuista, per dozen ..	8	0		12	0
Azalea, various, per dozen	18	0		30	0	Hyacinths, 12 pots ..	0	0		0	0
Christmas Rose	0	0		0	0	Lily of the Valley, 12 pots	12	0		18	0
Cineraria, per dozen ..	5	0		9	0	Marguerite Daisy, dozen	6	0		12	0
Cyclamen, per dozen ..	9	0		18	0	Mignonette, per dozen ..	6	0		8	0
Daffodils, 12 pots	0	0		0	0	Musk, per dozen	4	0		6	0
Deutzia, 12 pots	6	0		9	0	Myrtles, dozen	6	0		12	0
Dracena terminalis, doz.	24	0		42	0	Palms, in var., each ..	2	6		4	0
" viridis, dozen	12	0		24	0	Primula (single), per doz.	4	0		6	0
Epiphyllum, per dozen ..	0	0		0	0	Rhodanthe, per dozen ..	8	0		10	0
Erica, Cavendishi, per pt.	2	0		3	0	Roses (Fairy), per dozen	8	0		10	0
" various, dozen	12	0		18	0	" 12 pots	12	0		24	0
" ventricosa, per doz.	15	0		24	0	Saxifraga pyramidalis,					
Euonymus, var., dozen ..	6	0		18	0	per dozen	0	0		0	0
Evergreens, in var., dozen	6	0		24	0	Spiraea, 12 pots	8	0		12	0
Ferns, in variety, dozen ..	4	0		18	0	Tulips, 12 pots	6	0		9	0

Bedding Plants in variety, in boxes and pots.



YOUNG PASTURE.

YOUNG pasture of the second or third year must now in many instances cause some anxiety where it is seen to be so much thinner in plant and weaker in growth than it was in the first year. If it was sown in poor soil with a corn crop, without any special preparation of the soil, without manure (or if manure was used it was probably unsuitable), and has been grazed in the ordinary way from the outset, deterioration has set in, the sown Grasses are fast dying out, to be slowly replaced by natural Grasses, and the pastures are practically worthless. For such pasture in its third year there is nothing to be done beyond the usual process of regular manure dressings to encourage the growth of the natural Grasses, the herbage of which is so decidedly inferior to that of

the sown Grasses selected and mixed with so much care. It is at the beginning of the second season that remedial measures are possible, and if now the plant is seen to be less vigorous and thinner than it was last year careful sheep folding may do much to arrest and prevent further failure.

Small folds never left beyond the second day, and a liberal allowance of nourishing trough food, are the two most important points to observe. It is the turning in sheep to wander at will in new pasture that leads to such wholesale destruction of the young plant, for sheep have a decided preference for certain sorts of grass which they will feed off so closely and persistently as to kill it. Other grasses left untouched go to seed and die. All grasses do not fail after seeding, but some do, and the wisdom of prevention is obvious enough. No doubt many a puzzled farmer has asked himself why he has failed in laying down land to pasture, and we fear that in nine cases out of ten it is owing to mismanagement arising from ignorance of the few cultural points indispensable to success. It is not from mere prejudice that a tenant farmer almost invariably takes a corn crop with the pasture seeds, but rather because he considers he cannot afford to devote so many acres of land to pasture alone in the first year, and yet with good management a considerable amount of feed may be had from seeds the first season. To insure an end so desirable as this the land must have thorough autumn tillage, all perennial weeds then being got rid of, in doing which the soil is quite certain to be well broken up. After all we question if there is anything does this like a steam cultivator; only if we stir the soil too deeply and throw it up in huge clods the cleaning process is liable to be arrested if we depend upon autumn cultivation only, and therefore if the land is not available till after harvest, ploughing, followed by the duck-foot harrows, the roller, light harrows, and cross ploughing may be best. Every field must be treated according to its special requirements, and when the land is clean up with it at once into high ridges by means of the double-breasted plough, and so leave it till the following March. There it is, exposed as it can be by no other process of cultivation, to wind and weather—frost, snow, rain, and sunshine—in all the alternations of our changeable climate, so that when the sowing time comes it is so well pulverised as to insure us a fine deep tilth wherein shallow seeding and deep rooting are both admirably provided for.

Only get the land clean and ridged in autumn, and success is practically ensured; for is it not in our power to apply enough chemical manure to the soil to ensure fertility before sowing the seed? And even if we do take a thin corn crop with the seeds, can we not check the incipient exhaustion of the soil by the corn by another application of manure? Preferably we will avoid the corn crop, and do all that is possible to get in the seeds early, to prevent the annual weeds springing up among the Grasses and Clovers from producing any ripe seed. We will never turn in sheep or cattle upon young seeds to ramble and graze at will the first season, and if sheep go on at all it must be in folds; but the Rothampstead experiments have proved to demonstration how entirely possible it is to mow a new pasture from the first if only there is a regular and judicious use of manure.

WORK ON THE HOME FARM.

In our curtailment of the area of the Barley crop this season, not only was that devoted to Tartarian Oats largely increased, but also instead of drilling corn at all after the whole of the Turnip folds, much of it has been drilled with spring Tares and Oats both for silage and grazing, and that part of it reserved for Rape has just been sown. When the roots are so thin on the land that the sheep pass on quickly a little mineral superphosphate is used for the green crop, but this season the roots were a full crop; both sheep and lambs had too a liberal allowance of crushed corn and lamb food, so that the soil was thoroughly enriched, and no manure was required for the Rape. With deep, rich soil it answers best to drill Rape sufficiently wide to allow the horse hoe to be used, and to thin out the plant in the rows 9 or 10 inches apart. A crop of wonderful abundance is usually the result, and it comes into use in July just when feed is apt to run short on pastures.

Sheep continue so profitable that with the enlargement of the flock more land is taken for growing food of all kinds, and it was quite within the fitness of things that land on which sheep had been folded should be turned to account for a crop of early Turnips, which will come in for use when the sheep first go upon the stubbles after harvest. Sheep always thrive best when they have a frequent change of diet, and it is as unwise to keep them too long upon Rape or early Turnips as it is to suffer them to take fallen Barley ears too freely. Stubbles, pasture, Rape, Tares, Turnips all afford a wholesome change, and tend to promote health and condition. As the late summer folds are cleared of such crops the land is in admirable condition for ploughing for Wheat, for it is rich in fertility, and the sheep well repay us for the food they consume in this way. No autumn dressing of chemical manure is required, and it is most probable that the appearance of the corn in spring will be so satisfactory that we shall be content to let well alone, and to avoid any expenditure for manure then also. We have already seen lambs in considerable numbers offered for sale at market, and no wonder, for prices are very tempting to needy farmers.

CARTERS' NEW CROSS-BRED WHEATS.

MESSRS. JAMES CARTER & Co., the Queen's seedsmen, of 237 and 238, High Holborn, London, bring under public attention their new cross-bred Wheats—a feature of the Edinburgh Exhibition—which, from its practical importance to agriculturists, must arrest attention. These new Wheats, which have passed through one period of their existence on Messrs. Carter's seed farms at St. Osyth, first came under the eyes of the general public at the Paris Exhibition last year. Winning in 1882 the silver medal of the Royal Agricultural Society of England for the best variety of red seed Wheat, Messrs. Carter in the following autumn commenced experiments in the cross-breeding of Wheats, and for over six years have devoted unremitting care and attention to breeding, selection, and yearly re-selection, with the view of securing a thoroughly fixed character of the very best forms. The main objects sought for have been early maturity, quality of straw and grain, and vigour of constitution with increased productiveness. All these they claim to have obtained in a greater or less degree, and they urge that a trial of their new Wheats will prove greatly serviceable to all Wheat growers, as the blood of many of the most popular standard varieties runs in their veins. By observation during growth those selections can be determined for adoption and future cultivation that respond most liberally to the soil and surroundings, and by this means the most desirable varieties will be developed and reproduced. Mr. H. Evershed, in a late number of the Journal of the R.A.S.E., summarises the experiments carried out by Messrs. Carter under his personal observation, and instances the varieties of the parents and the peculiarities of the offspring. It may be mentioned that length of straw is generally influenced by the male parent, and form and size of ear by the female. Mr. E. appends statistics showing the period at which twelve selections of cross-bred Wheats made their growth, together with comparative tables, giving the dates when "in ear" and when "ripe" in 1887 and 1888. These data sufficiently establish the systematic manner in which Messrs. Carter have conducted their experiments, and it cannot be doubted that the trials will have an historical bearing on the future life of the seed Wheat employed in British agriculture. Messrs. Carters' aim, as one of our great seed houses, has been that in view of keen foreign competition our indigenous grain may hold its own in the estimation of millers, and prove even more valuable for mixing with the hardest grains of India and America.

The French Government, desirous of recognising the service rendered to agriculture by the introduction of the cross-bred Wheats, have conferred upon the managing partner at Messrs. Carters' firm the high distinction of the Order du Mérite Agricole, this bestowal marking its first distribution in England.

METEOROLOGICAL OBSERVATIONS.

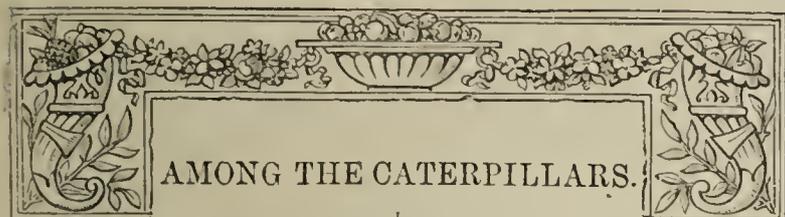
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
1890.										
April and May.										
Sunday	29.940	48.7	43.8	N.W.	41.8	54.6	36.0	101.7	28.8	0.099
Monday	29.974	49.4	46.1	N.W.	45.3	58.4	40.9	102.1	37.0	—
Tuesday	29.936	50.6	45.9	S.	46.3	60.4	41.2	102.9	35.4	—
Wednesday	29.992	57.3	49.9	S.E.	46.9	64.3	38.6	108.1	32.1	—
Thursday	29.910	57.3	54.7	N.E.	47.9	65.8	42.2	108.6	36.6	—
Friday	29.931	51.6	46.8	E.	49.2	62.9	40.4	102.1	36.5	—
Saturday	29.877	56.1	48.4	E.	49.9	68.1	49.1	110.4	34.0	—
	29.937	53.0	47.4		47.2	62.1	39.9	105.1	34.3	0.099

REMARKS.

27th.—Fine on the whole, and frequently bright; but occasional spots of rain.
 28th.—Heavy rain at 2 A.M.; fine day, with frequent sun, but spots of rain at midday.
 29th.—Fine and bright.
 30th.—Bright and mild.
 1st.—Mild and almost cloudless; lunar halo in evening.
 2nd.—Fine but hazy at times, and cloudy about sunset; clear moonlight night.
 3rd.—A little hazy, otherwise fine and bright.
 A fine week; temperature just about the average.—G. J. SYMONS.



AMONG THE CATERPILLARS.

NOT a very attractive theme, will be the mental comment of some readers on first glancing at the above creepy-looking headline. It is certainly not pleasant to be crawled over by repulsive pests at any time, and it is distinctly the reverse of agreeable to see the enemies of plants and trees carry out a campaign of devastation. Yet this is what caterpillars have done and are doing in some fruit-growing districts, leaving behind them a scene of desolation dismal enough to engender feelings of despair in respect to the ultimate issue. Gardeners and others who are identified with fruit culture in localities which the winter moth has not yet invaded, have no idea of the destructive power of its larvæ, the caterpillars. It is the most insidious, persistent, voracious, and difficult to subdue of all the enemies that attack trees and plants. American blight, red spider, scale, Gooseberry caterpillars, and other familiar foes are troublesome enough where they abound, but the work of destroying them is considered as child's play in comparison with conquering the terrible pest under notice by persons who, day after day, and week after week, engage in the combat.

This is an old enemy in some districts, but until within recent years was more frequently seen stripping Hawthorn hedges and trees of their leaves, and huge Oaks of their foliage at midsummer, than as a visitant of gardens and orchards, but where it becomes established in these, and the season is favourable for its increase, it is bound sooner or later to ruin the trees. It is simply impossible if a number of winter moths deposit eggs on fruit trees in the autumn for any fruit to follow if the caterpillars are not promptly destroyed as they hatch out in spring. Nothing has been discovered that will destroy the eggs in winter without, at the same time, destroying those parts of the trees on which they are deposited. This has been proved by Mr. Lee Campbell at Glewston Court, Herefordshire. In the early part of the year his gardener sent some "prunings" from Pear trees to the *Journal of Horticulture* for showing the eggs of the moth *in situ* as they had been deposited by the moths two or three months previously. The parts chosen for nests were at the ends of stems that had been left after late summer or early autumn pruning. The wood in drying had shrunk sufficiently to leave small circular interstices between it and the bark, and in these minute chinks, only apparent on close examination, eggs were closely packed, and an example was shown (magnified) with some still much more enlarged on page 95, the issue of January 30th of the present year. This was something like a revelation, and at once accounted for the millions of caterpillars that come like a scourge with the bursting of the buds of the trees. Mr. Campbell has told us on page 333 that though sundry substances and liquids were tried for destroying the eggs, even vitriol, nothing was effectual. Since the publication of that article I have been to Glewston and seen there much that was admirable in fruit cultivation, much that was deplorable in the ravages of the caterpillars, much that was instructive in their methods of attack, and the measures that had been taken to destroy the eggs alluded to and the larvæ on emerging. A number of egg-holding stems were inserted in moist sand in a propagating pan, and all applications that were likely to destroy the eggs were tried. An enumeration is unnecessary, because when vitriol was used and killed the wood yet some of the

eggs hatched out, enough is said to show that they cannot be destroyed by anything that would not also injure the trees. Sealing the cut ends with lead paint answered the best, but as eggs are also deposited around the buds, and in slight depressions in the bark, the paint remedy is inapplicable, for to make sure of "sealing" all the eggs the trees would have to be painted all over, and there would be an end of them. The hatching process was expedited by placing the cuttings in heat, the experiments being immediately under the eye and conducted with the utmost possible care. They appear to have determined the fact that the eggs cannot be killed on the trees.

But having found the trees laden with eggs they were not allowed to remain, for we were told in the article referred to three men were employed for six weeks in cutting off the ends of the branches in which the eggs were so closely packed. These were burned, and though Mr. Campbell refrained from indicating the estimated number so disposed of lest he should have been thought to be making a sensational announcement, I am quite ready to believe, having seen examples, also inspected the re-pruned trees¹ that the eggs thus consumed must have amounted to several millions—a great riddance undoubtedly—yet, notwithstanding, if the work of extirpating the pest had ended there the trees would have been deprived of every vestige of blossom and leaf this season by the all-devouring caterpillars.

Fruit growers in localities from which this devastating pest is happily absent may almost be excused in suspecting, as some possibly do suspect, that its numbers, power of destruction, and the difficulty of mastering the nocturnal moth and larvæ, are exaggerated. It is simply impossible to exaggerate when the attack is virulent. Let me give an instance, and in a few words describe a scene that cannot readily be forgotten. It was in a southern county, not Herefordshire, and the month was June. There were acres of grand Oaks, and a considerable extent of old and new orchards; but neither on forest or fruit trees, or on Hawthorn hedges was a green leaf to be seen. The outlook was as dreary as at midwinter, and gates, fences, and road beneath the trees were covered with a writhing repulsive mass of caterpillars. In some places they were an inch thick, and caution was necessary in passing along to get a firm foothold amongst them. Exaggeration in such a case is out of the question, and I am fully convinced that fruit growers will err in lightly regarding the first mild attack of the enemy on their trees.

At Glewston Court some of the finest and best managed young trees in the kingdom were defoliated last year, and had not the autumn been fine, permitting a good second growth, something more than this year's crop would have been lost, for the trees must have been permanently weakened. The plantation consists of upwards of 6000 bush trees of Apples, Pears, and Plums, most of them planted six years ago. They have been admirably managed in every respect, and but for the caterpillars would now give a good return on the outlay that has been invested. This is proved by results, especially in an acre of Victoria Plums—680 trees at 8 feet apart. They are about 6 feet high, and there is only just room for passing between them. The ground is as clean as a garden, in fact the plantation represents first class garden culture. Planted in 1884 the Plum trees yielded in 1885 fruit to the value of £13; in 1886, £26; in 1887, £40; in 1888, £50. The last increase of £10 only was the result of the caterpillar seizure, and its effect on the trees was no fruit in 1889, while the leaves were devoured, consequently there will be little, if any, fruit to gather this year. Thus allowing for no progressive increase of crop since 1888 we find a loss by the scourge of £100 from this acre of Plums. To this has to be added the cost of spraying twice or thrice a week with Paris green. A Boulton and Paul barrel with pump and hose attached is used, and two men are always at work in the plantation, for though the caterpillars can be killed others are constantly hatching, and this has been the case since the last week in March

to the second week in May, and still they come. This prolongation of emergence is one of the most serious aspects of the visitation, necessitating, as it does, constant vigilance, anxiety, and action to subdue the ubiquitous enemy. The combat is very determined: the trees will be saved, perhaps some fruit on Apples and Pears secured, and success even to this extent will be richly deserved by Mr. Campbell and his watchful, industrious, and able gardener.

The fruit garden at Glewston is situated on a declivity above the beautiful valley of the Wye. The soil is a fertile sandy loam, quite light enough, yet splendid fruit is grown both outdoors and under glass, or chief prizes could not have been obtained for it at such shows as the Crystal Palace, Shrewsbury, Ledbury, Cheltenham, Ross, Monmouth, Manchester, and other places. Good glass structures have been erected near the Court. In a 120-foot range not many more fruitful Vines could be found, and their condition is largely attributed to applications of liquid manure in winter, when the soil is in a suitable condition for its reception. The value of this practice I discovered many years ago, and recorded the same in the *Journal of Horticulture* and subsequently. Some gardeners cannot understand how land charged with fertility in winter can benefit fruit and other crops in summer, and some writers who are not gardeners condemn the practice, which they have never tried. It is sound and good all the same when properly carried out, as it is at Glewston and in other gardens and orchards.

Long span-roof pits are devoted to Tomatoes, the plants being like trees, through being grown in firm shallow borders, abundance of air admitted, and a dry atmosphere maintained. There is more woody tissue in one of these plants than in a dozen of those which I have often seen fall a prey to disease. The Tomato disease is not in the least feared by the gardener at Glewston. He is of opinion that in by far the great majority of cases where it occurs it is the result of errors in management, and so am I. Cucumber growing, Peach growing, and various other items must be passed, but as showing that the climate is good as well as the soil a plant of *Coronilla glauca*, growing up the wall of the Court, easterly aspect, must be mentioned. It is 8 or 9 feet high, covering a space 4 or 5 feet wide with a sheet of glistening yellow flowers such as are not seen on plants in pots. The protection of a blind is afforded during severe or inclement weather. On the same wall *Eucalyptus globulus* is in the best of health, and has a good and distinct appearance.

Glewston is pleasantly situated, and notable for high culture on the farm and in the garden; for a splendid flock of Shropshire sheep; for its great collection of fruit; unfortunate for the hordes of caterpillars, and fortunate that it is the hands of a gentleman who appears to take delight in doing all things well. His gardener, Mr. S. T. Wright, is such a good man that I can scarcely suppress a feeling of regret in not being able to claim relationship with him. I intended in these notes saying something about Toddington, Lord Sudeley's great and splendidly conducted enterprise in fruit culture. From the trees and bushes it is hoped 500 tons of fruit will be gathered this year for making into jam on the spot by Mr. Beach. Something must be said on the remarkable undertaking, so well managed by Captain Corbett and Mr. C. D. Wise, on another occasion, and more must follow about caterpillars.—
J. WRIGHT.

P.S.—Since writing the foregoing I have received the following note from Mr. Campbell, written on the 12th inst:—"Caterpillars are still hatching out, and yet it is nearly seven weeks since they commenced. Where no preventive measures have been taken it is safe to calculate on partial or total loss of fruit crops. It is too early yet to make any estimate, as the mischief is going on in the blooms to an extent of which very few people can have any idea. In spite of the good result from the repeated sprayings with Paris green, I can only speak with any degree of confidence as to the foliage, which I have great hopes of saving. I find that growers, who have taken no preventive measures, are now recognising that

the crop is a failure, and deciding that nothing can be done this season. On the contrary, I urge them to put forth all their energies to combat our foe. The caterpillar is beginning to let himself down to the ground. My emphatic advice is, Spray at once, and keep on as long as you can see a caterpillar, and then you may avert, or at least mitigate, an attack next year. Use, however, only 1 oz. of Paris green to 20 gallons of water, and be especially careful to keep the mixture thoroughly stirred."

PREVENTIVES.

"PREVENTION is better than cure" is an adage familiar to all from the days when it figured as the headline on our copybooks at school, and the forcible illustration of the pedagogue is still fresh in the memory of many an erewhile schoolboy. The successful man in any calling owes most of his success to forethought in preventing occurrences which would have entailed loss of time and much additional anxiety before the enfeebled result of a cure was obtained. Certainly there are events which no amount of ingenuity can prevent, and perhaps it is well that this should be so, although it forms no genuine excuse for the neglect of proper precaution in matters over which we have control. It is only the thoughtful man who finds real enjoyment in his work as he sees his carefully laid plans succeed each other with the same certainty that spoke follows spoke in a revolving wheel. In all matters contingencies have to be provided against, and the stronger the reinforcements in that direction the better.

Each individual seems to think that his own special pursuit calls forth the greatest mental exertion, this doubtless arising from intimacy with its intricacies; and, while not ignoring the work of others, it must be allowed that to be a successful gardener much forethought is necessary. There is the variability of climate which is beyond our control, and frequently makes the system that proved right one year to be quite the reverse the next. This is strikingly illustrated in that very important spring vegetable the Cabbage. Last year early plants were most useful to their possessors, turning in with only a very small per-centage "bolting," and owing to this favourable occurrence many were induced to plant largely at an early date during the past autumn, hoping to gain like results. But the different weather of the past winter has acted on many forms of vegetation in a different manner from its predecessor, so that this spring it is no unusual sight to see whole plantings of early Cabbages with scarcely an exception running to seed. It is at such times as these that the thoughtful man reaps the fruit of his forethought, for instead of trusting too fully to one planting he has reinforcements in succession.

Fruit culture has been receiving much attention lately, and great interest has been centred in its various details, and here again we see that forethought precedes success. Some time ago an account of the Castle Gardens, Cardiff, appeared in the *Journal*, and in the notice of the fruit trees I was especially struck with the winter dressing they receive. How many of the insect pests were destroyed through this agency it is impossible to imagine, and doubtless the annual application prevented some from ever gaining foothold. Many of the failures in fruit growing are rightly attributed to insect agency, and when our knowledge of their habits is more complete—and praiseworthy endeavours in that direction are going on—so that we may be able to catch them napping, we will soon get rid of their contumacy when awake. A thoroughly effective system of winter cleaning the fruit trees would undoubtedly be a good step forward in fruit growing.

A fondness for Roses is one of my failings, and from my intimacy with them I have found that many of the ills which they are heir to can be stopped by the timely application of preventives. Take the grub as an instance; the worm in the bud which blights the hopes and tries the patience of many a grower. It is the sad experience of many to find this enemy eating the bud of the most promising shoot, and the process of searching for them daily at a critical time is the most unpleasant occupation of a rosarian. Many an hour that could ill be spared have I spent in the vain endeavour to annihilate them until, a few years ago, I adopted a course similar to Mr. Pettigrew's with his fruit trees. About the beginning or middle of April, according to the season, just as the buds are bursting, before they show leaf, the plants get a good syringing with a mixture of petroleum, softsoap, and water rather stronger than is generally used for plants in leaf—*i.e.*, two wine-glasses full of petroleum and a small handful of softsoap dissolved in three gallons of water. I cannot account for it being more efficacious at that time than when the buds are quite dormant, but it is so, and it may be that instinct causes the embryo grubs to leave their resting place then to search for prey. This is now a question.

for entomologists, but since using the insecticide grubs have rarely been found in the Rose garden.

Most plants which are subject to the attack of insects at an early period of their growth enjoy greater immunity after the application of this or some other insecticide at a similar stage. The Peach may be taken as a familiar example. Almost before the leaves can be noticed the aphid sometimes begins its destructive work, and if once it gets a footing while the trees are in bloom the crop for both that year, and to some extent the succeeding one also, is inferior. Even after a good winter dressing trees are occasionally infested at this critical time, and the remembrance of one house which I once saw so attacked has made me dread its appearance. It was not in the garden of a slothful man where this occurred, and the efforts to save the crop were tedious in the extreme. As far as my experience goes a dressing such as I have described has been effectual in keeping them in check until fumigation and the syringe can be safely used.

Again, how much of the general neatness of well managed gardens is the result of forethought exercised in that direction? Weeds are prevented robbing the legitimate occupants of the soil through being uprooted by the hoe in their infancy, and confusion is unknown by having a place for everything and everything in its place. Remedies to effect a cure are quite common for all diseases, but preventives are not so largely advertised.—M. D.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 355).

FRUIT trees shelter each other when established, and as they differ in growth and in hardiness it will suffice in most localities to employ the stronger growing and hardiest as screens to the others. Northern Greening will stand quite as much wind as an Oak, and prove far more satisfactory pecuniarily than Lime, Sycamore, or other forest trees. Poplars and Willows are quick in growth and liable to the attacks of grubs and fungi.

In many localities where suitable sites exist for fruit plantations, hedges have been allowed to attain proportions little inferior to trees. Such ready-made shelters should be scrupulously preserved entire on the north, north-east, and north-west sides, opening out somewhat on the east and west, but leaving enough, however, to break the violence of winds from those points. From south-east to south-west the hedge may be cut as judgment determines, so as to afford in due course the requisite protection against intruders. No more trimming should be attempted on the other parts than will contribute to the formation of a good fence ultimately, but keeping in view that shelter for a few years is of primary importance.

Where such ready-made shelters do not exist and the location is not very bleak, it will not be necessary to incur any expense in providing shelter by planting, for whatever is planted will take time to become established so as to afford protection in any way beneficial to the fruit plantation, and by that time similar results may be attained by a judicious employment of the hardier and stronger growing fruit trees on the most exposed sides. On the north, north-east, and north-west sides Northern Greening alternating with Minchull Crab may be planted; inside those a line of Alfriston and Bramley's Seedling; and a third row of Baxter's Pearmain and Galloway Pippin. Those planted alternately 30 feet apart will ultimately afford all the shelter required from those points, but as immediate shelter is required the trees should have a temporary one planted between them in the lines, than which none stand wind better than Manx Codlin, Carlisle Codlin, Devonshire Quarrenden, Worcester Pearmain, and Dumelow's Seedling. Between the rows a line may be planted of Dutch Mignonne, King of the Pippins, Fearn's Pippin, and Greenup's Pippin (Yorkshire Beauty), so very efficient shelter would be provided by five rows of trees 15 feet apart, which would be profitable from the third year of planting, and in a dozen or more years will have amply repaid the first cost, independently of their value as shelter up to that time, when the other or permanent trees will have grown so as to necessitate their removal.

On the east and west Dutch Mignonne, King of the Pippins, Fearn's Pippin, and Lemon Pippin may be efficiently employed, the two first alternately in the second line, and the two former in the third, for as an outside line on those points Blenheim Pippin and Bess Pool are to have place alternately. Both are strong growers, stand almost any wind (I have seen Blenheim Pippin quite luxuriant over 500 feet above sea level in the Principality), and they help sometimes after fifteen to twenty years' usefulness in filling the fruit basket. The alternating distance can be filled both in the lines and between them with the hardier free early fruiting sorts, so as to have the trees 15 feet apart every way. This will give an enclosed space, in which can be grown the

kinds requiring shelter and warmth, and instead of the "twopenny-halfpenny" system of planting, let the whole of the space be covered with trees half the distance apart they are ultimately, both as to the rows and the trees in the rows to remain, and they will give in seven years a better account of themselves than under the usual plan of sticking in trees 24 to 30 feet apart, and getting only profit of a quarter the ground in seven years, and not half in fourteen to twenty-one years.

To plant an acre at 30 feet apart only requires forty-eight trees. Seventy-five trees at 24 feet, and at 12 feet 302, or 15 feet 193, which is not overwhelming as regards first cost, and the trees do not have to struggle against wind for two or three years ere they become acclimatised (for we must bear in mind there is a great difference between trees grown in nursery lines not as many feet apart as we propose to put them in yards under the quarter distance system recommended). Whatever may be thought of the distance, it is only what the nurseryman practises with trees under the dwarfing system, by which means they are much healthier, and though bearing may be somewhat delayed, it is marked by a decided increase and enhancement of product. Anyone planting a mixed hardwood plantation—Oak, Ash, Elm, Sycamore, &c., 20 feet apart without putting in the nursing Larch, Scotch Fir, Spruce, Austrian and Corsican Pine—the 2614 in order to shelter and bring on the 108 hardwood trees of the permanent plantation would be thought extremely careful of killing the goose that lays the golden eggs, and it tells far more against the planting of fruit trees. They require shelter to rear to planting size, at least it is most profitable to do so, and as it is effected by having them at such distances as to shelter each other, it is strongly advised as the only means by which fruit can (recourse not being had to intermediate cropping) be grown to command the market and return a good percentage on the outlay. This, of course, would necessitate trenching the ground, thereby adding to the first expense a sum equal to the cost of the trees. What of that? It is the haphazard system of planting fruit trees anywhere and anyhow that has thrown the "plums" into the hands of the importers. If land will not pay to cultivate it is much better left alone, and instead of grumbling at those supplying our markets with wholesome cheap food, accord them the credit due to their superior knowledge, enterprise, and industry. By digging a pit in grass and sticking in trees 24 to 30 feet apart, we are as likely to supply the markets with British grown Apples as ever; besides, it is a sheer waste of energy.

Whether we have a fruit garden—*i. e.*, dwarf trees or an orchard, shelter is a foregone conclusion. It can be either of the trees themselves as before stated, or special sheltering subjects employed. In dealing with a fruit garden it may not be necessary to employ large or standard trees, but have dwarf standards, or such as have stems of about 18 inches. These may be on the Crab stock, and planted 15 feet apart every way. The kinds and order of planting may be the same as detailed for orchards. Three lines will give all the shelter required, the trees being trained as bushes. The interior could be divided into quarters by lines of espaliers 6 feet high running east and west and north and south, the quarters being about 25 yards square, which distance I find quite sufficient to break the curling or eddy force of wind after its force is broken by the sheltering trees, and the less the wind acts on the fruit quarters the less warm air is blown out of them, to be replaced by cold. The same thing in a different manner can be effected by planting lines the reverse way; the others being north and south may have a cross row, or east and west, at every 25 yards instead of the espaliers. This does not materially interfere with the cultural operations, and it exerts considerable influence on the currents of air, which control the absorbing, retaining, and radiating power more than is generally supposed. What we want is warmth in the enclosure and to retain it without liability to sudden transitions, which are more liable to occur on slopes than on level ground. With suitable soil and location sheltered from north, north-east, and north-west winds, with the easterly and westerly gales tempered by broken or open shelter, and a free clear embrasure between east and west to let in the sunbeams, fruit culture may be entered upon with every reasonable prospect of success.

FENCES.

Whether a fruit garden or an orchard be made, a fence of some kind will be necessary. For a fruit garden oak palings (rended) are certainly durable, and being 6 feet high with a line of thick-set four-barbed fencing wire along the top a fence practically unassailable is formed, and it has the advantage of being available on the interior for trained trees of the choicer kinds, the north aspect being equally eligible for larger fruited hardier sorts. As a hedge nothing surpasses a quickset or Thorn, with enough Holly to impart a cheerful appearance in winter. Seven Quicks and one Holly per yard, planted in ground properly trenched and manured

and duly attended to in cleaning and trimming, will make a good hedge in four to six years. It will form a barrier in due course that will effectually stop intruders.

In locations near the sea winds are sweeping through, there being little wood, copse or hedgerow trees to soften their effects or break their force. Of all subjects that I have seen used for the purpose of shelter on the sea coast none had the vigour and sturdiness of the common Elder (*Sambucus niger*). A double row of plants, a foot apart, form in a short time a capital screen for fruit trees on the dwarfing system, which appears best suited to these locations, as it is difficult to get anything upon a plane surface sufficiently tall to protect standard trees. In some "burns," however, this is readily effected by Willows and Poplars, planting them about a yard apart so as to get up quickly. In these miniature valleys the ground slopes sharply, and has a sort of plateau here and there in the descent, which are taken advantage of by fishermen and others for gardening purposes, on some of the southern slopes of which I have seen as fine Apples and Pears grown as any reaching our markets from Canada or the Channel Islands, and at the base of these slopes there may often be seen a good sized orchard, which from the deposit of matter washed down from the higher ground, and the stream running higher than it does now, had a good depth of soil, in which the Apple luxuriates. These locations have the disadvantage of liability to suffer from spring frosts; indeed the trees there may often be seen fruitless when the bushes at an elevation of 100 feet or more on the slope are carrying heavy crops of full sized highly coloured fruit. In other respects they are admirably suited to the growth of Apples, being sheltered to the north by the acclivity, and it is not difficult to afford shelter from the west and east by planting Willows, Poplars and Sycamores, with Mountain Ash, wild Pear and Elder for undergrowth. As a hedge plant the wild Pear (*Pyrus communis*) is unequalled on the sea coast. It should be planted 6 inches apart, the ground being well trenched and manured so as to encourage free growth. It will make a hedge effectual in every way for a fruit garden.

PLANTING HEDGEROWS.

Planting fruit trees in the hedgerows of fruit gardens and orchards may be desirable, or rather feasible, if the proprietor or tenant own or rent the adjoining land. Land that grows good timber will grow Apples, but the farmer looks upon the removal of hedgerow timber as a great aid to successful cultivation, and it must be admitted trees in hedgerows prejudice the ground as far as their heads overhang and the roots extend. There is no certainty of a fence or crop whilst the trees remain. Fruit trees in the hedge of a fruit garden or orchard may be regarded in the same light. They may be used to the prejudice of another, and interfere with the keeping of an unbroken fence. It is only when the trees become aged and close headed that they are injurious to the fence, as up to a certain stage (which extends to the better part of their days) they are beneficiary as shelter and in fruit production. Up to a certain size and age Apple trees grow quite as freely and as abundantly fine, or finer, fruit trees in an orchard in grass from the circumstance that the ground has been thrown up and deeply stirred for the quicks—an advantage of amelioration and condition of soil of which the trees are not slow to avail themselves. It follows, however, that soil permeated by the roots of the hedge plants and trees will become sooner exhausted, the trees will overpower the fence, when it is of course a question as to which shall go to the wall. That is so remote a contingency that it may be excluded from present consideration, besides it is easily remedied when the time arrives by a retention of the "fittest."

In planting the hedge with trees we must bear in mind that we lose half a row internally, as by planting trees in the hedge we must put the first line of trees half as far away from the fence as where there no trees in the fence, unless no account is taken of the trees in the fence, only relying on them for shelter and fruit in the early stages of the fruit plantation. This would, perhaps, be the best lines on which to set out, planting in the first instance with a view to shelter and early profits, and as experience is gained thinning can be effected in accordance with exigencies as they arise, which can only obtain where judicious planting has been made—namely, thick as compared with current method, in order to get shelter, a reasonable, early and increasing return on the outlay.—G. ABBEY.

(To be continued.)

INSECTS OF THE FLOWER GARDEN.

(Continued from page 253.)

A very beautiful beetle, almost an inch long, which sometimes disports itself upon our flowers during May is called the "Cardinal," from its colour, or in Latin *Pyrochra coccinea*. The thorax and

body are scarlet, also downy; the head black, having a curved mark of dull red between the eyes, and the antennæ are elegantly toothed. It nibbles slightly the petals of flowers, but is not guilty of doing much damage. As larva its life is very different, for then it inhabits the wood of decaying Poplars or Willows. Nearly related to the Cardinal beetle is a species generally visible about the same time, for which we have no English name, so must call it *Rhipophorus paradoxus*, but it is less than half the size. This insect is partial to the flowers of Umbelliferous plants, and to the cymes of such species as the Guelder Rose. On the slightest alarm, however, it bends down the head under the thorax, hides its longish antennæ, and raises the wing cases, which are orange and black. Possibly this odd movement is a precaution against an attack from a hostile wasp, for it is now a well-ascertained fact in the history of the species that the larva or grub preys upon the grub of the common wasp, and therefore it must be accounted a somewhat useful insect. How the beetle manages to travel about amongst the cells to deposit eggs, and also when reared how its offspring escapes unobserved, is rather mysterious. It is noticed that extra large beetles emerge from the grubs that have been so fortunate as to feed up in the cells of queen wasps. If this species subsists, as beetle, upon flowers it is not capable of damaging them materially. That pretty but rare beetle, the Spanish fly, Blister beetle, or *Cantharis*, has occurred in gardens upon the flowers of Privet and *Syringa*, and its tints of green and gold might attract persons to it, so that we need not regret its scarcity with us, for, both living and dead, it is a dangerous species to approach near.

I have now reached the group of beetles which contains the bulk of those that are specially injurious to vegetables, fruit, and flowers, but which do not cause so much loss in the flower garden as in other departments; still many species appear there in large or small numbers, and they bear the familiar name of weevils, a word apparently derived from the old German *wifel*, curious because it is said to mean something woven, and is probably an allusion to the closely spun cocoons of some species. They are also called "long-nosed" beetles, the head being lengthened so that it forms a kind of snout, upon which are the antennæ. In front are mandibles or jaws furnished with muscles of surprising strength considering the size of the beetles. A few of them can produce a slight sound by vibration of the wing cases, and a few others that frequent woods have the power of leaping. The grubs of all the weevils are short and stout, usually whitish, and they are, as in the Pea, Bean, and Nut species, exceedingly mischievous.

The Pea weevil, so familiar to all who shell Peas, is an insect we may at some time or other notice upon the flowers of our beds, but so far as I have observed it limits its attacks to the edible Pea, the ornamental species escaping. Much more frequent in gardens is the Bean weevil, a tiny creature which looks grey, though its colours are really black and white. It haunts the early flowers of spring, presumably for their honey, and then betakes itself to the rows of Beans as soon as the pods are beginning to form. Less even than the weevil of the Bean is the host of minute beetles belonging to the genus *Apion*, which have received the English name of Pear weevils, because their bodies, if magnified, resemble Pears in shape, the head of the insect representing the stalk. We may see them upon flowers by hundreds and thousands. In their larval life they dwell within the roots or stems of plants, occasionally we discover that they are tenants of some gall-like swelling upon leaves. Under the microscope they are most interesting objects, both from their varied colours and curious tracery on the thorax and wing cases, and the majority do no serious damage to our flowers, though they may disfigure a few plants. The one which has been most frequently complained of is *A. radiolum*; it deposits eggs in spring upon the stems of several herbaceous plants, being partial to the Hollyhock. The grubs feed within the stem on its pith, become pupæ there, and appear as beetles in October, hiding somewhere during the winter months. Some people introduce into their gardens specimens of the Mullein, or a variety, it being somewhat showy, if not a choice species, and this plant is the favourite resort of weevils, their larvæ nestling in the woolly leaves, upon which when full fed they spin netted cocoons of silk.

The larva or grub of the grooved or black weevil (*Otiorynchus sulcatus*), a well-known pest of fruit, occasionally turns up in the soil of beds and borders, but it is chiefly troublesome from its habit of infesting plants in pots both in and out of houses. Its favourite position is just beneath the earth, where the roots radiate from the stem; one even has been known to kill a good sized plant, but they generally occur in small parties. These grubs are legless and hairy, white or dull yellow, and live from August to April, when they cease to eat. The beetles are about in May and June, and they creep upon the soil in an insidious manner, getting partially under the earth, so are seldom noticed while depositing their eggs. I may note that clear lime water has been recom-

mended for the destruction of this grub in pots or borders, a decoction of quassia with softsoap is fatal to it, and a solution of hellebore kills it; but this cannot always be conveniently applied to infested plants. An application of petroleum diluted, strength 1 oz. to 2 gallons of water, has been recommended. Happily, there are two or three species of weevil that are quite different in habit from the rest of the group. These belong to the genus *Anthribus*, and in their larval state prey upon the scale insect or coccus of various kinds. Hence, so far as they can be recognised by the gardener, they should be left alone both in and out of doors, for Nature's parasites do a great work in preventing the rapid increase of species. The Anthrubs are distinguished from their relatives by their clubbed antennæ. The grubs are hairy, and appear to attack principally the female coccus, preventing the development of her eggs.

A not uncommon garden beetle of the long-horned family is that called the wasp beetle (*Clytus arietis*). When it is seen upon flowers most persons feel inclined to avoid it, for its aspect and movements suggest that it must belong to the wasp family. The head and thorax are black, the latter globular, and the body is yellow, ringed with brown. This insect can fly and also run rapidly, owing to its long legs. It is, in fact, a mischievous species, and we find out the harm it can do not unfrequently when we examine into the state of garden palings. These may be found reduced to a condition like tinder by the operations of the larvæ of this species, sometimes living in parties of twenty or more, small, but with broad muscular bodies and horny heads. Another beetle that, like the preceding, is abroad in June is conspicuous, but in a different way, and more directly troublesome to the horticulturist; but of late years it has been scarce fortunately. It is akin to the too plentiful Asparagus beetle (*Crioceris asparagi*), and has been called the Lily beetle. In length it is about a third of an inch, and in colour bright scarlet. The squat grub feeds upon the leaves of Lilies, Daffodils, Gladioluses, and allied species. It received the name of *C. meridigera* from its peculiar habit of forming a protective cover of the excretions, beneath which it feeds securely, and is also sheltered from the sun.

In leaving the great order of the beetles it is only needful to mention the abundant insects of the last division—the ladybird tribe. These, in their beetle or larva state, may be seen from March to September upon almost every plant, their object being a good one, the destruction of the aphides or flies, by which so many of our choice plants are infested and greatly weakened if not killed.—ENTOMOLOGIST.

FORCING SWEET PEAS.

IN accordance with your request, it affords me much pleasure in relating the culture of the above practised here. In many places, where large quantities in succession of sweet scented cut flowers are in demand, I can recommend these as a good substitute. When they are gently forced under glass in a temperature ranging from 50° to 60° Fahr., with abundant ventilation in favourable weather, they are among the most delicate and beautiful flowers; especially as they need so little attention, and give a good supply of flowers. They are grown in a compost of turfy loam slightly enriched with decayed hotbed manure. The first sowing is made the first week in June for late autumn supply, in boxes or 10-inch pots, which size is most suitable for conservatory decoration, and grown outdoors in full exposure until the approach of frost, when they are taken inside, and, being full of flower buds, expand freely in the above-named temperature, and give a good supply of flowers onwards to Christmas.

A second sowing of the Sweet Peas is made early in August. When these are taken inside they are wintered in the vinery, Peach, or Fig houses at rest. When forcing commences in these houses early in January, they remain here until the night temperatures are raised to 60° Fahr., whence it becomes necessary to remove them to other succession houses at from 50° to 55° at night. If warmer than this I find the growth becomes elongated, they refuse to flower freely, and consequently they fall a prey to green fly. A moderately warm dry atmosphere, with abundant ventilation, suits them admirably. Plants from another sowing late in December in 5-inch pots are grown in cold frames until 5 or 6 inches high, when they are planted out on a warm border, and ultimately form a good succession by the time the August sowing is exhausted. Then with still further additional sowings outdoors, there are few months when we are without them. There are times during hot dry weather, when they refuse to flower freely outdoors, owing to seed podding, but if denuded of these with the shears, accompanied with a good watering, they break freely into growth, and will well repay the trouble bestowed upon them.—J. T. EBBUTT.

MARIANTHUS DRUMMONDIANUS.

THIS charming little blue-flowered twining plant is but seldom seen, and is known by few cultivators, though it was introduced to

public notice some twenty or thirty years ago. Early in the present season a specimen flowered extremely well in one of the houses at the Crystal Palace under the management of Mr. W. G. Head, and the freedom with which it produced its flowers, and the long period during which they lasted, amply proved the value of the plant. It succeeds in a compost of light loam, peat, and sand, in a greenhouse or any other cool structure.

The plant has been thus described by Sir Joseph Hooker:—
"Marianthus of Huegel is a genus now, according to Mr. Bentham, including fourteen species, of which all, except two (*M. proeumbens* of New South Wales and *M. bignoniaceus* from Victoria and South Australia), are natives of Western Australia, and chiefly from the Swan River settlement. The blue-flowered species are extremely



FIG. 59.—MARIANTHUS DRUMMONDIANUS.

pretty, as may be seen by the present figure, and by that of a nearly allied species given at t. 3893, *Marianthus cœruleo-punctatus*. The *M. Drummondianus* is a more slender and graceful twiner than that, while the flowers are of a paler blue. Whole plant, except the petals, more or less villous or ciliated (in the leaves) with soft patent hairs. Stem filiform, long twining, branched with short patent branches, the upper ones especially flowering copiously. Leaves 1 to 2 inches long, oblong or lanceolate, scarcely petiolate, rather acute, lower ones toothed or subpinnatifid, the rest entire at the margins, smaller upwards. Peduncles very slender, terminal and lateral subeumbrose; pedicels elongated, filiform, with a small bract at the base. Calyx of five linear, subulate, erect, distantly placed sepals. Petals spathulate, very acute, bright but pale blue, the claws erect, the lamina spreading. Stamens five, much shorter than the petals. Ovary cylindrical, stipitate,

gradually tapering upwards into a short style. Stigma small, capitate two-lobed."

PRESENTATION TO MR. W. BARDNEY.

A MOST enjoyable gathering of gardeners and the horticultural trade took place on Saturday evening, the 10th inst., at the Falcon Restaurant, Lord Street, Liverpool. The occasion was a farewell dinner and the presentation of an illuminated address to Mr. W. Bardney, who is leaving Norris Green, West Derby, to take charge of the beautiful gardens of Osmaston Manor, near Derby, the seat of Sir A. B. Walker, Bart. Mr. Thomas White occupied the chair, in the absence of Mr. W. Tunnington through indisposition. Mr. J. Glover was in the vice-chair. About seventy gentlemen partook of an excellent repast. After the loyal toasts were given and duly honoured, the Chairman, in submitting the toast of the evening, "Our Guest," referred to Mr. Bardney as our representative and friend, who was well known and highly respected in the surrounding district, and his common-sense articles that had appeared in the *Journal of Horticulture* during past years were highly appreciated and a gain to horticulture by the valuable information they afforded. On behalf of those interested in horticulture in Liverpool, he had great pleasure in presenting Mr. Bardney with an illuminated address as a proof of their esteem, wishing him health, happiness, and prosperity in his new position. (Sustained applause). Messrs. J. Glover, T. Davies, H. Middlehurst, A. R. Cox, and others supported the Chairman's remarks as to the abilities and unvaried courtesy of Mr. Bardney, and of his integrity and uniform honesty in his writings, and his practical worth as a gardener.

The illuminated address was well designed, and enclosed in a neat oak frame. The inscription was as follows:—"William Bardney.—We, representatives of the horticultural trade and gardeners in the neighbourhood of Liverpool, take the opportunity on your leaving Norris Green, where you have been for a period of 12½ years as head gardener, to present you this address as a token of our great esteem, and whilst regretting the loss of one who has done so much in the interests of gardening in this neighbourhood, we congratulate you and wish you every success in your new undertaking at Osmaston Manor. We trust that in the future we may be benefited with your contributions to the horticultural press as heretofore." The address was signed—R. P. Ker and Sons, Thomas Davies & Co., Henry Middlehurst, R. Rowlands, C. Young, J. Williams & Co., Thomas White, John Glover, R. G. Waterman, Edward Bridge, J. Massey, S. Whitfield.

Mr. Bardney, in rising to respond, was received with much enthusiasm. He thanked the company for the kindly words that had been spoken, and for their cordial reception and splendid address. The kindly gathering of so many friends on this occasion would never be forgotten, and the address would continually remind him of their friendship and esteem. In reference to his writings in the horticultural press, he had always endeavoured to write for those requiring information. Those who have advantages and opportunities should at all times be willing to give of their knowledge in the cause of their pursuits. He was leaving Liverpool with deep regret, as it was leaving a district of unusual merit in horticulture, and where he had enjoyed the friendship of a large number of those engaged therein. In his new position he hoped to merit the approval of his employer and the continued esteem of all those engaged in horticulture.

Mr. R. W. Ker, in responding to the toast "Horticulture," spoke of the genial brotherly friendship existing amongst all connected with horticulture. Other toasts included the Chairman, Mr. C. Young, organiser of dinner, Mr. H. Middlehurst, and the thanks of the company were tendered to Messrs. P. Jackson, G. Hulatt, W. H. Read, W. Bramham, and R. G. Waterman for their excellent services in the musical portion of the evening.

[We join in congratulating Mr. Bardney on his appointment to his new charge, and are well assured that he possesses the necessary qualifications for managing successfully the large and well equipped gardens at Osmaston.]

THE CARNATION.

(Continued from page 385.)

[PRIZES for essays on the Carnation having been offered through the Ealing Gardeners' Improvement Society, Mr. Charles Turner, the adjudicator, awarded the first prize to the following useful contribution of Mr. David Cooper, foreman, Gunnersbury House, Acton.]

SEED SAVING.

AS I have already remarked raising seedlings is a very interesting way of increasing the stock, especially when we fertilise and save seed from our own plants. The Carnation, as a rule, is not a prolific plant, and the more double the flowers are the less likely are they to seed. Therefore semi-double blooms are the best for that purpose. But very much depends on the season, for as it is a rather late flowering plant the seed has not much time to ripen. When the seed-pod begins to swell, showing signs of containing seed, which will be when the flower is fading, the withered petals should be pulled out from the corolla to prevent any damp collecting upon it, as that would retard the ripening of the seed. Great care should be taken in removing the petals not to

injure the styles, or all chances of success would be destroyed. The seed should not be gathered until fully ripe, which will be about the middle of September, and it will then be almost black in colour. The pods should be cut, put on a sheet of paper, and placed on a shelf in a dry airy situation near the glass to finish it off, as it were, for about a fortnight. Afterwards carefully rub it out, and if not intended to be sown until the spring it should be stored away in a cool dry place. It would be almost two years from saving the seed before the worth of the flowers is ascertained. And since the Carnation is such a variable flower it is almost certain to produce many worthless kinds; but if one good new variety be secured in a season an enthusiastic cultivator would be amply repaid for all the labour.

INSECTS.

The wireworm is one of the most destructive insects to Carnations, and is generally brought into contact with it in the loam and leaf mould, especially if it has been allowed to lie outside in the rain. It is easier to detect in the latter on account of its colour, which is of a yellowish cast, and it is nearly an inch in length. It attacks the plants at the roots, and will soon make sad havoc among them if not quickly disposed of when detected. This is not an easy matter, as it works below the surface of the soil. If the plants show any signs of being attacked by it a trap may be set by inserting a piece of Carrot in the soil near the stem, which would be almost sure to attract them, examining it from time to time, and destroying any found. Soot water is an excellent remedy to drive them away, but the destruction of them is doubtful. In preparing and turning the soil a sharp look out should be kept, which would be the most effectual remedy as regards pot plants.

Earwigs.—These, I believe, form the most troublesome pest to deal with on account of their travelling propensities, eating and disfiguring so many flowers in such a short time. They attack the blooms from the time they are in bud until they are over, eating the petals through at the base, going through the calyx if the corolla is not expanded enough. I do not know any means to prevent their attacking the blooms except that they should be well sought after during the night, which is generally their feeding time, with a lamp, showing the light on them suddenly, as they drop on the ground as soon as they are disturbed. Bean stalks make good traps. Cut them in lengths about 6 inches long, putting them near the stem of the flowers. They will conceal themselves in the bean stock when it begins to get light; they should be looked for every morning and blown out into a can of water.

Greenfly.—This is another pest the Carnation is subject to, and if remedial steps are not taken to dislodge them as soon as they appear they will increase with alarming rapidity, and will seriously affect the health of the plants. The insecticides used for their destruction are numerous, but when injudiciously applied often cause more injury to the plants than the aphides do. If the plants are infested with them before the blooms begin to expand steep some quassia chips at the rate of 2 ozs. to 1 gallon of water, applying it with the syringe, which is not only a good remedy for destroying the insect, but an excellent preventive. The same might be applied when in bloom with a little tobacco juice added, using a soft brush, taking care it does not touch the bloom; or if convenient, and the buds are not too far opened, fumigating with tobacco would bring about the desired effects.

Grubs.—These, like the carwig, attack the flowers in the night-time. They are from 1 to 2 inches long, of a greenish colour. They feed on petals, eating holes through the calyx, and will also devour the young growth. In the daytime they might be found buried in the soil near the stem. The best remedy is hand-picking at night with a light.

I will now make a few remarks with reference to another enemy, which is sometimes called a disease. Anyone conversant with Carnations would have noticed the top of the foliage will occasionally become crimp and hard, stunted in growth, and with the least touch will fall off. This is caused by a very small insect (which cannot be discerned by the naked eye) of the spider tribe. They affect many other plants in the same way. They are more noticeable in Carnations when in a young state, especially during the winter and early spring months. The safest and most effectual remedy is by dusting the parts affected with tobacco powder, slightly damping the foliage so that the powder will stick on, repeating the operation when necessary.

DISEASES.

Spot is a disease unhappily known among Carnations, taking its name from the manner in which it affects the foliage of the plant. This occurs more in the winter during damp and close weather. It is

caused by water coming in contact with the leaves, which is sometimes done by careless watering in the case of plants under cover. Outside it totally rests with the weather and the class of protection afforded. For this quicklime might be used with good effect, dusting the plants all over, and a little soot mixed with it would do no harm.

Mildew.—This is a very troublesome disease to be guarded against, and is almost sure to attack plants if they be kept close and warm, which should at all times be strictly avoided. Should it make its appearance, flower of sulphur may be shaken over them through a piece of muslin or a sulphur distributor. There are many preparations used for this malady, but I believe the old-fashioned one recommended above to be the most effective.

There is another disease I might mention, but I must frankly confess that my knowledge of it is very slight. It comes in the shape of an insect mite that attacks the roots, working its way through the centre or pith and ascending into the stem. Plants when attacked soon begin to turn yellow and assume a sickly appearance. If allowed to go unchecked it will often affect the whole stock of plants, which will soon become an eyesore and a source of annoyance to the grower. In this case I should advise soot to be used, shaking a little over any plants that show signs of becoming a prey to this insidious disease, and watering with soot water. But the better plan, when the foliage is showing any suspicion of the disease, is to take the plants and burn them; thus sacrificing a few might be the means of avoiding all further trouble and anxiety.

WINTER TREATMENT.

Presuming the layers and cuttings have been rooted and potted, I might be allowed to give a few hints respecting their winter situation and treatment. Cold frames or shallow brick pits would be the best place to keep Carnations during the above season, having several inches in depth of coal ashes at the bottom to stand them on and to keep out the worms, having the plants near the glass, and giving abundance of air, removing the lights altogether in the daytime, and leaving them tilted at night in mild dry weather, and in wet weather they should be tilted in opposite directions to the wind, either sideways, top, or bottom. A little air might be afforded them for an hour or so in the middle of the day in frosty weather if the frost is not too severe. They are less likely to be injured by two or three degrees of frost than by keeping them close and covered for any length of time. Of course this is unavoidable sometimes when there is a long spell of sharp weather, but a chance of giving air should never be missed. For covering the frames straw mats are the best, as they can be rolled on and off with ease, besides keeping out more frost than many other materials used.

Watering.—This should be done very sparingly during December and January, and should be done with a small-spouted can, never using a rose on account of wetting the foliage, choosing bright days and early in the morning. They should never be allowed to get too dry for any length of time, as the stem will lose its pith and thus be seriously injured. Steer between the two extremes as near as possible. They should be gone over at intervals, picking off any decayed leaves, and keeping a sharp look out for any disease or vermin, and as soon as observed take measures against it at once. If the soil gets green and crusted on the top, it might be stirred occasionally with a pointed stick. Towards the end of February, if the weather be mild and genial, the plants would be greatly refreshed if allowed to receive the benefit of a gentle shower, coming from the south or south-west, for a half hour or so, taking care to get the foliage dry again as soon as possible. Any plants that have been left in the open ground should be protected in the manner advised for seedlings.

TREE OR PERPETUAL CARNATIONS.

Anyone acquainted with the London or other flower market of consequence, will know to some extent how highly this Carnation is esteemed by the quantities that are disposed of there. Unlike many other flowers they never appear to be out of season, and as I remarked before, they are decidedly the best for pot culture. There are numbers of sorts grown both for private and market purposes. For the latter the delicate flesh colour variety of *Souvenir de la Malmaison* and *Miss Jolliffe* seem to hold the sway, and are estimated at no mean value by almost all cultivators.

Propagation.—This can be done in July and August, or in the following January, either by layering or cuttings. It would be advisable to propagate at both seasons, as by so doing there will be two sets of plants in different stages of growth; by this means, and growing early and late sorts, and regulating them by stopping, you prolong the

flowering period a considerable time. All plants that are rooted the two former months can be done on the same principles laid down for summer flowering varieties, and potted in small pots according to their size and habit of growth, and wintered near the glass in a greenhouse or some cool structure, giving plenty of air during the day whenever possible; and if the ventilators are so constructed that they can be used without fear of the rain beating in, a little air should be left on at night in favourable weather. The temperature should not go below 45° at night, or above 50° with fire heat, but sufficient warmth should be afforded to keep them gently moving, using judgment in regard to watering, and taking the same precaution as to vermin and diseases. If green fly be troublesome fumigate with tobacco. About the beginning of February shift the plants into size larger pots, and so follow on as they need it, until they are in the sizes required to flower in; 32's to 16's would be convenient for that purpose. The compost for potting should be about the same as is used for the summer flowering kinds except a little more loam in proportion, with a little broken charcoal, should be added. During the summer they should be placed outside, where they would be sheltered from high winds. The most tender sorts should have cold frames for their summer quarters, or skeleton frames might be made so that lights could be put over them to protect from heavy rains; and if the whole could be so protected it would be a great advantage, as sometimes during the summer we get heavy thunder storms and occasionally hail, and if not protected the young shoots are damaged, while the roots may be too wet. The plants should be properly staked. When the roots have well filled the pots they should be supported with weak liquid manure, using sheep dung if procurable, if not cowdung, preparing it as before directed. Soot water prepared in the same way may be used (not too strong), giving it about once in ten days, and liquid manure alternately for a week, then resting a week. This will serve as a general guide, but judgment should be used, as some sorts are more gross feeders than others. As soon as they show signs of blooming the tops should be taken out (which in ordinary seasons would be about the middle of June) and at frequent intervals throughout the summer the tops of the side shoots. If early flowers are desired to succeed the late summer varieties a few plants can be selected of the sorts required, and the stopping regulated so as to get them into bloom about the second week in September, taking them under cover a week or so previous. About the above date the whole should be placed inside, and allowed to follow on flowering during the autumn and winter until about the middle of January, when propagation should commence again, and spring-struck plants should be just coming into flower. Either method of propagating could be resorted to at this season.

If layered a good plan is to plunge them in a warm pit, or in a Peach house or vinery, that is started, where there would be a brisk moist heat, spreading the shoots all round the pots, and layering in light prepared soil, where they should quickly take root; or they can be struck from cuttings, selecting the medium size side shoots, as they will be more likely to root than the large gross ones. Soil for this purpose should consist of two-thirds loam to one of leaf mould, sifted and mixed with plenty of sand; over the crocks put a layer of fertilising moss, crumbled to prevent the fine soil from getting among the crocks, also for the small rootlets to strike in, and from which they can be separated without much fear of breaking them, filling up the pots within an inch from the rim, finishing off the remainder with sand mixed with a little powdered charcoal. Dibble in the cuttings firmly, about six to eight in a 4-inch pot; give them a good watering, and plunge in bottom heat of about 75°. The propagating pit would presumably be used at this season, and if the temperature be over 70° the lights should be removed, providing the house temperature is about 65°. When sufficiently rooted they should be potted off (also layers), gradually hardened, and taken into a cool house, where they should remain until safe to go outside, potted, and treated in the same manner as previously stated as regards staking, watering, topping, &c. These plants that were rooted in the above-named season should be topped later, so that some will be coming into bloom about the beginning of the following year, to succeed those that have been flowering during the late autumn and winter, which will then be going off and used for propagating, and may continue until the summer-flowering varieties are in bloom. Thus by having two sets of plants, both early and late sorts in each, by skilful culture and good management starting them into flower when about one year old with a good selection, including the summer flowering varieties, I see no reason why Carnation blooms cannot be obtained all the year round. Old plants

should be grown throughout the summer, or might be planted out to furnish cuttings and layers the ensuing July and August, besides giving a quantity of flowers.

(To be continued.)



EVENTS OF THE WEEK.—As noted in another paragraph, the Covent Garden Fête, on behalf of the Gardeners' Orphan Fund, will be held on Wednesday next, May 21st, from 8 to 12 P.M. The Society of Arts will meet on the same date at 8 P.M., and the usual auction sales will be held in London.

— **THE WEATHER IN THE SOUTH.**—Frequent and heavy rain has distinguished the weather of the past week, and in light soils or high lands this is an advantage that can be duly appreciated in May. In low situations, and where the soil is heavy, it is a doubtful benefit, and in some cases the land is saturated or even overflowed. Generally, however, the rain will help vegetation greatly. The deciduous trees have made rapid progress, all except the latest being now in full leaf. For some days the wind has been easterly, and consequently cold; lately it has changed to a south-westerly direction, with a corresponding rise in temperature.

— **THE WEATHER IN THE NORTH.**—May 5th-12th. The weather has during the week been seasonable, with occasional showers, which did much good. Last night rain fell heavily for hours. Easterly winds have generally prevailed, but growth has been rapid everywhere. The thermometer has never been under 43°.—B. D.

— **GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—In our advertising columns will be found a list of contributions in view of the fifty-first anniversary dinner to be held on June 12th, under the presidency of Mr. H. J. Veitch, the Treasurer. There are, doubtless, a large number of gardeners and others who will be glad to enhance the funds, on the occasion, of this valuable Institution.

— **GARDENERS' ORPHAN FUND.**—The grand Floral Fête and Promenade in aid of the above Fund will be held, by permission of the Duke of Bedford, in the wholesale Flower Market, Covent Garden, on Wednesday next, May 21st, from 8 to 12 P.M. The Lady Mayoress has consented to open the Fête, and the band of the Royal Horse Guards will perform a selection of music from 8 to 11 P.M. The tickets (limited to 2000) are 5s. each, and can be obtained from Mr. J. Assbee, Market Office, Covent Garden, or the Hon. Sec., Mr. A. F. Barron, Royal Horticultural Society's Gardens, Cliswick.

— **NOBLE STRAWBERRY.**—I have had a few pots of this Strawberry, the size and colour of the fruit not to be surpassed by any other variety, but the fruit has no flavour. My employer describes it as dry and not worth eating. Vicomtesse Hericart de Thury, growing on the same shelf, is splendid, and a great favourite here. Will Mr. H. S. Easty, or any other correspondent, tell us about the flavour of Noble, and if it requires any special treatment?—CRAVEN.

— **CALMON'S RED UNIVERSAL HOSE.**—We have received from Messrs. Clarke & Co., 3 and 4, Great Winchester Street, London, a sample of hose under the above name, which possesses several excellent qualities. It is well made, light, yet remarkably strong, very pliable and elastic. One special character claimed for the hose is that it is not liable to harden or crack, and its appearance justifies this assertion. It is admirably adapted for garden purposes.

— **THE DOUBLE FURZE.**—This is a valuable plant for seaside planting. At the present time it is in full bloom, its double golden flowers having a grand effect amongst other shrubs. It makes a fine hedge and bears clipping remarkably well, but it is seen to the best advantage when allowed to grow freely. The sea breeze does not seem to affect it, and it grows and flowers in the most exposed places where other plants can scarcely live. It is raised from seed grown in pots and then planted out. It does not bear transplanting in an older state.—J. B. S., *Bournemouth*.

— **DEATH OF MRS. RIDGEWAY, MOTHEL RECTORY.**—It may interest many of the readers of the Journal to learn that this venerable lady (I have been told the only remaining daughter of the distinguished Sir Joseph Paxton), at about the scriptural age of threescore and ten, quietly passed away at the residence of her late husband, at the Mothel Rectory, not far from here, on the 8th inst. She had been to the West Indies on a visit to the Governor of Jamaica, Sir Henry and Lady Blake, vainly trying to recover her health, and only recently returned. She was reputed to have all the enthusiasm and love for horticulture which her father did so much to extend and popularise, and my gardening friends at various shows have often told me many anecdotes in illustration.—W. J. MURPHY, *Clonmel*.

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of this Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following papers will be read:—"Rainfall of the Globe—Comparative, Chronological," by W. B. Tripp, M.Inst.C.E., F.R.Met.Soc. "Mutual Influence of two Pressure Plates upon each other, and Comparison of the Pressures upon Small and Large Plates," by W. H. Dines, B.A., F.R.Met.Soc. "On the Variations of Pressure Caused by the Wind Blowing Across the Mouth of a Tube," by W. H. Dines, B.A., F.R.Met.Soc.

— **PARIS GREEN AND CATERPILLARS.**—Mr. S. H. Stott writes that in making experiments with Paris green some of the poison entered his hand through small wounds that had been caused by pruning Roses. He advises that it should not be handled without gloves for avoiding similar accidents. He is making further experiments with a view to its safe distribution. We may remind our readers that Paris green is prepared in the form of paste, and this Miss Ormerod recommends; it is also preferred to the powder at Toddington, where it has been successfully used in the extensive fruit plantations of Lord Sudeley.

— **THE WEATHER IN NOTTINGHAMSHIRE.**—The following summary of meteorological observations at Hodsock Priory, Worksop, for April, has been sent by Mr. Joseph Mallender:—"Mean temperature of the month, 43·8°; maximum on the 30th, 65·1°; minimum on the 1st, 24·8°; maximum in sun on the 30th, 121·4°; minimum on grass on 2nd and 11th, 17·1°; mean temperature of the air at 9 A.M., 45·7°; mean temperature of the soil 1 foot deep, 45·3°; nights below 32° in shade, eleven; on grass, twenty. Sunshine.—Total duration in month 129 hours, or 31 per cent. of possible duration; five sunless days. Total rainfall, 0·46 inch; rain fell on thirteen days. Wind.—Average velocity 9·5 miles per hour; velocity exceeded 400 miles on six days, and fell short of 100 miles on six days. A fine dry month with a good deal of frost at nights. Vegetation did not grow much during the month, and rain was much wanted at the end."

— **THE RATING OF ORCHARDS.**—Mr. Hobhouse has introduced a short Bill into Parliament, the purpose of which is "To amend the law relating to the rating of orchards for sanitary purposes." In the Public Health Act of 1875 it is provided that "the occupier of any land used as arable, meadow, or pasture ground only, or as woodlands, market gardens, or nursery ground," shall be assessed to the general district rate in an urban district, or to a separate rate levied within the meaning of the Act named in the proportion of one-fourth part only of the net annual value or rateable value of such land. Doubts have arisen whether orchards are included in this provision, and some are accordingly rated at one-fourth, while others are rated at their full value. To remedy this Mr. Hobhouse's Bill expressly provides for the insertion of the word "orchard" after the word "woodlands" in the above quotation, thus placing them upon the same scale as other land cultivated for profit.

— **THE SPARROW PEST.**—Having taken much interest in the communications which have appeared in the Journal recently respecting the destruction of fruit buds by several kinds of small birds, I wish to add my testimony respecting the supposed harmlessness of the common house sparrow. I can sorrowfully inform the readers of the Journal that the last two seasons the sparrows have alighted upon the Red Currant bushes here, piped to each other, and denuded the shoots of every bud within their reach, from the base upwards, excepting the terminal one. I have watched them particularly, and I feel quite satisfied that it is their mischievousness, as plenty of food is available close by. The bullfinches have also done us much damage with the bush fruits and several varieties of Pears, especially the Jargonelle, Beurré Clairgeau, &c., as they are fond of these. The tomtit tribe really do good by picking out the insects, which I have noticed frequently. I wish to thank Mr. J. Hiam for his kindly hints respecting taking bullfinches by

trap cages. I did this and caught several, selling them at 1s. 3d. each. I kept them a fortnight according to his directions.—J. T. EBBUTT.

— **OUTDOOR MUSHROOM GROWING.**—In the Journal of May 8th, at page 381, your correspondent "D. S. H." writes of successful outdoor culture at King's Heath, near Birmingham. I have recently had an opportunity of inspecting some large outdoor pyramidal formed beds in Mr. James Murdock's extensive market gardens at Crewe, close by Kenilworth, and there Mushrooms are grown on an extensive scale both indoors and out. The outdoor beds are made up as recommended in Mr. Wright's treatise, spawned in the winter, covered with litter, and cutting has been going on for some time, from a very heavy crop. This method of growing Mushrooms is so simple and inexpensive as to be within the reach of all. A well made bed lasts in bearing for a long time, and the exhausted manure and soil of the beds is useful for surfacing, especially for heavy soils. Barns, well built but unused pigstyes, and any description of outdoor building is utilised at Crewe for Mushroom growing, even an old silo of considerable size doing duty, and one had to keep toes straight forward to avoid kicking the Mushrooms over, so narrow are the paths. Everywhere are shoals of Mushrooms without any artificial heat whatever, and grown in an inexpensive manner.—W. D.

— **EARLY TOMATOES.**—Kenilworth bids fair to become as celebrated for early Tomatoes, Cucumbers, Mushrooms, and Strawberries as for its grand old castle ruins and excavations at the churchyard, which is laying bare some superb work of past ages. Mr. Henry Whateley has two large blocks of glass structures in Spring Lane, each consisting of ten houses, and each house 103 feet long by 12 feet wide, and the height 6 feet to the apex. They are really Covent Garden supply houses, a style well known to London growers. One block is devoted at present to Cucumbers, from which many thousands of fruits have, and still will be, cut, the varieties grown being Whateley's Hybrid, an excellent variety raised by Mr. Whateley, sen., of Stoneleigh; and a seedling variety of handsome form. Both are heavy croppers. The other block of ten houses are devoted entirely to Tomatoes, each house containing 550 plants in treble rows on each side of the pathway. The sorts grown are the Glamorgan, which is evidently a selection from the Old Large Red; Haekwood Park, but chiefly an excellent stock of the Old Large Red. The plants are very strong and vigorous (my visit was late in April), as high as they will be allowed to go, stopped, and loaded with fruit and flowers, many of the former ready for colouring. They are the finest cropped plants I have ever seen at the period of the year I have mentioned. In one house Ham Green Favourite is planted on one side, the selected Old Large Red on the other, and the latter will, I think, win in a canter for earliness. For cropping the test will be later on, as this house was planted later than the others. They are planted out in old Mushroom beds and soil, plenty of good loam on the grounds, and some excellent Mushrooms are gathered amongst the Tomato plants.—W. D.

— **FRUIT PROSPECTS.**—Peaches and Nectarines on unprotected walls are a good average crop, but have been much infested with green and black fly, and several blistered leaves on some of the trees. This no doubt is owing to the cold north-easterly winds, but now we have had showers of rain, nearly an inch in two days, and warmer weather, the trees will grow freely. Apples, according to present appearance, will be a good average crop. Blenheim Pippin and Keswick Codlin on old trees, and all the Codlin type, are wonderfully prolific in blossom, but it does not always follow where there is so much blossom there is fruit in proportion. The following varieties are showing fairly well on bush trees:—Jolly Beggar, Court Pendû Plat, Kerry Pippin, Northern Greening, Dumelow's Seedling, Devonshire Quarrenden, King of the Pippins, New Northern Greening, New Hawthornden, Worcester Pearmain, Adams' Pearmain, Cellini, Cox's Orange Pippin and Ribston Pippin, a good deal cankered. Laxton's Schoolmaster is showing well on small bush trees. Pears are not so fruitful. The following are the best: Louise Bonne of Jersey, Williams' Bon Chrétien, Comte de Lamy, Bergamotte Esperen, Beurré de Capiaumont, and Catillac. These are bush trees. On wall, east aspect:—Forelle or Trout Pear, Louise Bonne of Jersey, Williams' Bon Chrétien, and Glou Morceau appear to have set fairly well; but the same varieties on bush trees seem to have suffered from the late sharp frosts. Plums are very thin. This in many instances is caused by the ravages of bullfinches and other birds. Small fruits, including Gooseberries, Currants, and Strawberries, are fairly good. Gooseberries are very clean and healthy. Laxton's Noble is leading the way in Strawberries; it is the first to come into bloom, and is the earliest variety we have for outdoor work.—G. R. ALLIS, *Biggleswade.*

— THE ROYAL BOTANIC SOCIETY has arranged for a "Floral Parade and Feast of Flowers" to be held in the Regent's Park Gardens on June 26th next, in the same place as that held last year. The schedule states that—"The idea of the Floral Parade is to encourage the use of floral decorations as in the South of Europe, in public and family rejoicings, such as public festivals, weddings, majorities, and processions. Memorial, funereal, or political indications or suggestions will not be allowed. It is to be distinctly understood that all decorations, dresses, &c., are for out-of-door use. Carriages, &c., can be dressed before entering or in the gardens. The parade will pass the Royal daïs, then round the course. The awards will be presented at the Royal daïs. Prizes are offered for flower-dressed carriages, horses, pony carts and cars, riding horses, children's carriages, &c., designs and groups of plants and flowers. The classes are as follows:—Victoria or other carriage and pair of horses, all dressed in natural flowers; ditto, ditto, all dressed in Roses; Victoria or other carriage and one horse, all dressed in natural flowers; ditto, ditto, all dressed in Roses; pony basket or ear and pony, all dressed in natural flowers; carriage dressed inside as a bower, drawn by one or two horses, also dressed in flowers; riding horse, decorated with flowers; children's pony or donkey, ditto; other carriage or conveyance not included in above drawn by horse or other animal, decorated with flowers; carriage or conveyance moved by man, woman, or child, decorated with flowers; children's mail cart, decorated with flowers; tricycle, decorated with flowers; design or garden in cut and pot flowers; group of Roses, all kinds and colours; climbing plants; specially scented plants; Palms; group of foliage plants, not including Crotons; Crotons; Ferns; variegated hardy plants, Ivies, &c.; hardy cut flowers; standing basket of flowers. Medals are offered in the classes, and for the best of all exhibits a prize of £20.

ODONTOGLOSSUMS AND THEIR CULTIVATION.

[A paper read before the Birmingham Gardeners Mutual Improvement Society at the Midland Institute, March 15th, 1890, by Mr. W. Stevens, Walton Grange Gardens, Stone, Staffordshire.]

ODONTOGLOSSUMS form such a large genus, to which so many additions have been made in the last few years, that they include at the present time some of the most beautiful and useful decorative plants in cultivation. They are all evergreen, producing their flower spikes from the base of the last made pseudo-bulb. Some have large stout pseudo-bulbs and foliage, some small and narrow, the spike usually being produced from the largest sheathing leaf in the shape of spike or panicle. Sometimes two are produced, one on each side, and on strong plants I have even seen three, one on each side and one from the top of the pseudo-bulb. Most of them grow well and flower freely, although there are a few exceptions. *O. coronarium*, for instance, grows well with me, but seldom flowers, or at least not with any regularity.

Then, again, others produce their flower spikes from the matured pseudo-bulb, others come up with the growth, and make the pseudo-bulb at the same time, *O. nævium majus* for instance; and again some flower out of the young growth when about an inch long, *O. citrosimum* being an instance. Some produce spikes 3 to 4 feet long, while others only as many inches. Some flower only in the spring, summer, or autumn, but the most beautiful and popular—*i.e.*, *O. crispum* and *O. Pescatorei*—produce them all the year round, and where numbers of these two beautiful species are grown the houses are seldom or never without a few spikes of bloom.

Before proceeding to discuss the cultivation of *Odontoglossums* it will help us very much if we just have a glance at the climate and district from which most of the *Odontoglossums* are collected, and by the kindness of Messrs. Veitch of Chelsea, who have given me the permission to quote from their "Manual of Orchidaceous Plants," part 1, I think we shall be able to form a pretty good idea of both climate and district.

The *Odontoglossums* are confined to the mountain region of tropical America that extends from about lat. 15° S. to lat. 20° N. They are also restricted to particular mountain chains within these limits, so that while spreading to an immense distance in one direction, they are included within a comparatively narrow space on the other. Their southern limit is where the great Cordilleras of the Andes begin to draw closer together after enclosing the lofty plateau of Peru and Bolivia, and where a change in the climatic condition of the Andean region becomes perceptible.

From Cuzco northwards as far as Chachapojas, a distance of over 500 miles, the *Odontoglossums* occur very sparingly, only three or four of the small flowered species having yet been met with, but at the last-named place they begin to appear at much smaller intervals. North of the equator the Andes break into three distinct ranges; one, the eastern Cordillera, running in a north-easterly direction, bends along the coast of Venezuela as far as Cape Paria. It is on this range that the greater part of the most popular kinds occur, being most numerous and abundant on that portion that lies between Bogota and Ocana, and which may be regarded as an *Odontoglossum* centre. The middle

range, called the Central Cordillera, extends northwards, and terminates at Cape Gallinas. Only a few species inhabit this region, but the valleys on both sides, that of the Magdalena on the east and the Cauca on the west, are exceptionally rich in orchidaceous plants.

The third range, or Western Cordillera, has its trend near the Pacific coast, continues its course through the Isthmus of Panama, and onwards to the high table land of Mexico. No *Odontoglossums* are reported from this range within the new Granadian territory or from the Isthmus itself, where the lowest summit level between the oceans on each side of it is probably not greater than 150 feet, but northward of this the land again rises, forming at places peaks of great altitude, and here the *Odontoglossums* again appear.

Throughout Central America there extends a series of table lands, which gradually increase in elevation as the distance between the seas increases, till the great wedge-shaped plateau of Mexico is reached, the average elevation of which is not less than 7000 to 8000 feet. On these elevated lands the *Odontoglossums* occur at first sparingly, but gradually increasing in numbers on advancing northwards towards Oaxaca, where they appear to attain their greatest northern development, beyond which they again diminish in numbers till their northern limit is reached, at about the twentieth parallel.

Not far from this line is the southern limit of the Sierra Madre, where *O. maxillare* has its home; and eastwards from this is the Irapuan range, on which *O. maculatum* and *O. Cervantesi* were discovered nearly a century ago by the veteran orchidologist Laxara. These are the most northern *Odontoglossums* known.

Not only are the *Odontoglossums* confined to the mountain chains and table lands above described, but they are also restricted with few exceptions to a zone whose vertical range is confined within comparatively narrow limits. On the South American continent, from the southern limits of the genus to as far as the Isthmus, by far the greatest number occur within a zone whose vertical range rarely descends below 5000 feet, or ascends above 9000 feet. There are some species indeed, such as *O. densiflorum* and *O. compactum*, and a few other small-flowered species which grow on rocks or on the bare ground above the timber line to as high as 11,000 to 12,000 feet elevation.

The climate of this zone, by reason of its elevation, is decidedly temperate, the mean annual temperature being about 57° F. for the higher portion, and 65° F. for the lower; but the difference between the maximum and minimum temperature observed during the year is very great, the thermometer sometimes standing at 90°, and even higher when the sun is vertical, and descending to 40° in the night. The atmosphere of this elevated region is always at a very high degree of saturation, caused chiefly by the north-east trade wind, by which the enormous evaporation from the Atlantic Ocean is constantly being drifted towards the Cordilleras, where it is arrested and condensed.

The rainy season of parts of the *Odontoglossum* region is thus almost continuous throughout the year. At night, when the temperature falls considerably below the mean, the vapour with which the atmosphere is always charged takes the form of a dense fog, which always leaves a copious deposit of dew before being dispersed by the rising day temperature. As a consequence of these climatic conditions the vegetation of this region is uninterrupted throughout the year, and the whole belt is covered with a dense forest.

The *Odontoglossums* are found in the greatest abundance in those parts of the forest which skirt the occasional openings, and along the numerous streams where there is freer access of light and air, and where it not unfrequently happens that numbers of plants are found fully exposed to the direct rays of the sun. It is observed of these that the pseudo-bulbs are always smaller than those which are in partially shaded situations, while those growing in more complete shade, on fallen trees, or on the ground where there is an excess of moisture have large fleshy pseudo-bulbs, rarely flower, suffer much by removal, and generally perish during transmission to Europe.

North of the Isthmus, and especially within the Mexican territory, the local circumstances are somewhat different from those of New Granada, caused chiefly by the peculiar configuration of the land. Here the *Odontoglossums* appear to be spread generally over those portions of the plateau wherever the conditions suitable to their well-being exist, as well as the slopes of the central mountain ranges, and the various spurs that branch from them. The climatic conditions of the *Odontoglossum* region north of the Isthmus of Panama are also somewhat different from the region of New Granada and Venezuela; thus in Guatemala there is a wet and dry season, the first commencing in December and ending in April, and the second (dry) lasting through the remainder of the year, thus there is a decidedly pronounced rest in the vegetation of the country; but on the higher grounds, where the *Odontoglossums* have their homes, there is always a high degree of saturation in the atmosphere even in the dry season, caused by the moisture from the Atlantic and the lowlands being drifted thither by the trade wind, and which during the nights in the early part of the year takes the form of dense fogs. In Mexico the climatic conditions of the Sierra Fria are similar to those of the highlands of Guatemala, but the rainy season is of shorter duration, and the temperature is remarkably uniform, the mean summer and winter temperature varying scarcely more than from 10° to 12°. The precipitation caused by the trade wind attains its greatest strength on the eastern slopes of the mountains skirting the high central table land; here the rainy season lasts eight months of the year, and the temperature ranges between 53° to 60° F.

Throughout the whole of the *Odontoglossum* region there is never a

perfect rest; in the aerial currents there is always a gentle breeze to be noted.

(To be continued.)

THE ROYAL HORTICULTURAL SOCIETY.

THE schedule issued for the Society's Show in the Inner Temple Gardens, May 28th and 29th, states that "silver cups and medals will be awarded according to merit for exhibits in the following classes:— A, Flowering plants: Orchids, Anthuriums, Azaleas (Indian and Mollis), Begonias, Calceolarias, Roses, Rhododendrons, Gloxinias, Alpines, Clematises, Pelargoniums, &c. B, Foliage plants: Palms, Ferns, new Plants, Dracenas, Caladiums. C, Cut flowers: hardy herbaceous plants, Rhododendrons, Tulips, Lilies, Irises, Roses. D, Miscellaneous Groups (flower and foliage). E, Market plants. F, Bouquets, table decorations, &c. G, Fruit. H, Vegetables. The Society will issue for this Show a catalogue comprising a history of the Royal Horticultural Society, including particulars of their meetings and shows both at the Drill Hall, James Street, S.W., and at Chiswick. It will contain the programme of the music to be performed each day by the band of Her Majesty's Royal Horse Guards (Blues), and a list of exhibitors and of their chief exhibits; but we are requested to state that no names, &c., can possibly be inserted unless they are received by Mr. Barron, R.H.S. Gardens, Chiswick, or at the Society's offices, 117, Victoria Street, on Saturday, May 24th, at the latest; 10,000 of the schedules are being printed in expectation of the Prince of Wales opening the Show."

As the position is the best to be found in London we shall hope for favourable weather and a brilliant success.

We have received the following letter for publication:—

DEAR MR. EDITOR,—With regard to a report which has appeared in a contemporary of my resignation of the secretaryship of the Royal Horticultural Society, may I ask you to be so kind as to contradict it? The report, however, has somewhat more truth in it than have most reports, for I am very anxious to find someone who will take up the work. The Society may, I think, now be said to have turned the corner, and has, I hope, seen its worst days. I feel, therefore, that I have done my duty by the Society, and that I could now hand things over to a successor in a far more satisfactory condition than I found them. A new era, too, is commencing, with the prospect of a new hall, and therefore it seems to me a most fitting time for a new shoulder to be put to the wheel. At the same time, though on many accounts I am very desirous of retiring into private horticultural life, I have not actually resigned, nor shall I do so until a successor is forthcoming unless more urgent reasons arise than I am glad to say at present exist.—W. WILKS.

Mr. Wilks has laboured incessantly in the interests of the Society, and won the esteem of a host of friends. The value of his services are fully, and we believe unanimously, appreciated. We should rejoice to see him retain the honourable, if exacting, position he holds till the new Hall is an accomplished fact. We have done our best to make clear the conditions of co-operation. We are convinced that Baron Schröder's project is absolutely safe, and the sums contributed—he they large or small—will be repaid to the uttermost farthing. It is a question of sacrificing the interest on the amount subscribed, and that alone, for a time in the interests of horticulture. We are glad to find from a list before us that additional promises of support are recorded, and we earnestly hope that all connected with the industry of horticulture who are in a position to help forward the project will do so, and that amateurs with means at their disposal will not hesitate to enrol themselves as supporters.

SPARROWS AND RATS.

IT seems to be now pretty generally acknowledged that sparrows have become an actual pest to the farmer and gardener, but it is odd how differently they behave in different places. I have never had any Primroses or Crocuses injured by them, but a neighbour who lived less than a mile away (and each of us adjoined a farmyard where sparrows swarmed), had to protect these flowers most carefully, or every bloom would be plucked off as soon as it opened. The only garden produce of mine which they injure is Peas. These are easily protected by dark thread when in the ground or just coming up, but it is a nuisance to have to net them when in pod. The families of young birds just able to fly give the most trouble at that time.

There is no doubt they are very destructive. The worst injury they do, as I have before pointed out in the Journal, being the driving away of martins, which are naturally appointed to keep down hurtful insects by destroying them in the air in their winged breeding state. And I quite agree with Mr. A. T. Marston that "Nature herself provides the requisite balance in all things," and that an undue increase, amounting sometimes to a pest, arises when that balance is interfered with. But

I cannot think that in this case the injury has been done by the destruction of hawks. Sparrows constantly hanging about houses are pretty well protected from birds of prey, and if hawks abounded in sufficient numbers to keep down sparrows we might have the Green Peas perhaps, but very few young ducks and chickens, I fear, to eat with them. No; the balance of Nature has been interfered with in their favour by the artificial housing and feeding of sparrows. We provide them in our houses, our Ivy, and our barns, &c., with comfortable roosting and nesting places, and we feed them in winter by allowing them access to the food supplied to animals and fowls. And the fault lies, I think, in the apathy with which farmers, and perhaps others, view what seems to them to be small matters, and to some extent in a sentimental feeling, excellent in itself, against destroying nests with old birds and eggs or young together. It seems rather strange that a farmer should complain and "write to the papers," and employ boys with guns to scare the sparrows from his corn, when he has quietly allowed them to breed by scores during the spring and summer all over his premises, pulling about and spoiling his thatch before his very eyes; but it is so.

I was present the other day at the threshing of a Wheat stack where there were very few rats but hundreds, perhaps thousands, of mice, though white and brown owls breed within half a mile. Neither the farmer or his men took much heed of them, or seriously attempted to destroy them, though showers of chaff, attesting the damage done, poured from every sheaf lifted. They escaped by scores into the straw, though my boys killed some hundreds. And are there not a good many farmers who look upon rats as small matters, not worth the trouble of destroying unless they make a really great show? I was walking with an old gamekeeper a good many years ago by a stack and hedgeside where the presence of a good many rats was very evident, and on my saying what a pity it was to let them do so much harm, he answered, "Harm, sir? Oh, no! Dear little things! they don't do any harm, bless you, not they! while a poor innocent rabbit, sir," &c., &c. He "spoke in bitter jest," and also, of course, to a large extent in party spirit; but while fully recognising the great injury rabbits are capable of doing, I could not help thinking that he had some cause for his "chaff," and I was, and am, surprised that farmers take so little trouble to utterly destroy rats. To this desirable end I believe there to be only one royal road, and that is, first, to employ a professional ratcatcher, and, secondly, to pay him on the same principle on which the Emperor of China is said to pay his physician: while the emperor is well, the physician gets a fair salary; when he is ill, off comes the doctor's pay; and when he dies, off comes the doctor's head. Pay the ratcatcher a very small but regular salary as long as there are no rats, and stop it on the first appearance of a rat till it is caught.

In the destruction of rats and rabbits there is one individual that is far more desirable and difficult to catch than the others, and that is the last one. By the present system of paying ratcatchers the very rat you want to get is the one he wants to keep alive; by the other system he would be as anxious for it as you are, as it would be the only one he would get anything for. Of course, it would be desirable, if not necessary, for occupiers to combine over a considerable area. One man would then eventually have charge of a large district for a very small fee from each occupier, which would act as a kind of insurance against rats.

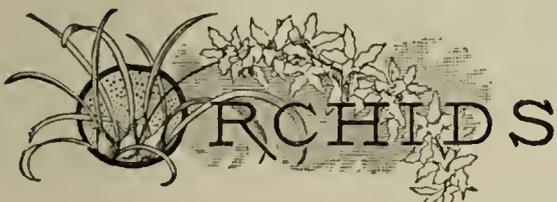
I hope we shall not have to come to this with sparrows; but at any rate every gardener may seriously lessen his own injury by regularly and properly looking after the nests. With a little care and practice the hen bird may generally be caught on the nest at night, and though this sounds cruel, it is surely not so bad as the use of poison, which would cause the young to die of starvation.—W. R. RAILLEM.

with darker veins, the sepals and lower petals being ivory white. The unfolded lobes of the lip are white beautifully spotted with bright rose, and this gives a peculiarly distinct and pleasing appearance to the flower.

This grand hybrid was named in honour of the Baroness Schröder, and in the collection at The Dell Gardens a fine specimen is grown, which has been shown on several occasions in first-rate condition.



FIG. 60.—CYPRIPEDIUM SCHROEDERÆ.



CYPRIPEDIUM SCHROEDERÆ.

SEVERAL handsome hybrids have been obtained in what is often termed the Sedeni section of Cypripediums, but that of which a flower is depicted in fig. 60—obligingly lent by Messrs. J. Veitch and Sons, Chelsea—is one of the best and most distinct. It resulted from a cross between *C. caudatum* and *C. Sedeni*, effected by Mr. Seden in the Chelsea nurseries, and presents an interesting combination of characters, while surpassing both in floral attractions. The flowers are large, being fully 4 inches from the apex of the dorsal sepal to the base of the lip, the petals being 4 to 6 inches long, half an inch broad at the base, tapering and twisting to the points. The colour is rich rose, is strongly marked in the fine rounded lip; a similar tint but slightly lighter is seen in the petals

PROGRESS WITH VEGETABLES.

PART I of vol. xii. of "The Journal of the Royal Horticultural Society" recently issued forms a volume of 232 pages. It contains the papers read at the Vegetable Conference and the Chrysanthemum Centenary Conference last year, together with reports of the Society's Committee meetings and list of plants certificated. Under the Chrysanthemum report the returns from eighty-seven voters have been tabulated by Mr. Molyneux, and lists of varieties suitable for different purposes are thus furnished.

From the report of the Vegetable Conference we extract the following remarks by the Chairman, Mr. H. J. Veitch, at the opening of the Conference, and dealing with the progress in vegetables.

While decorative plants and flowers, in all their varied forms and

brilliant and delicate colours, must necessarily form the most striking part of a horticultural exhibition, and also the chief attraction for the general public, it cannot be otherwise that the homely aspect of the vegetables in daily use should cause them to fall into a subordinate place as objects for exhibition to the majority of the visitors. To the gardener, however, they have a different significance, and often a deeper interest attached to them than the more showy products of the flower garden. In fact it is not too much to say that an exhibition of vegetables like the present one is essentially a gardener's exhibition.

There are some simple facts connected with the present state of development of our most commonly cultivated vegetables that are worth bearing in mind. One of the most prominent of these facts is the length of time that it has taken since these plants were first reclaimed from the wild state to attain the perfection in which we now have them. Scarcely a vegetable in daily use can be named that has not been in gardens for centuries. The Runner Bean, the Tomato, and the Vegetable Marrow were probably among the latest to come into general cultivation, and these were as familiar to our great-grandfathers as they are to us, although in a lower degree of perfection and productiveness. The Cabbage is one of the most ancient of vegetables, for we know that it was cultivated by the Greeks and Romans, and it has therefore been in cultivation as an article of food for more than 2000 years in the south of Europe generally, and following the spread of civilisation into more northern latitudes. In a wild state the Cabbage has been observed to deviate a little from a common type, but under the care of man, in such a variety of climate and soil in which it has been cultivated during so many centuries, it has broken into the various forms we now have it, these forms including the Broccoli, Cauliflower, Brussels Sprouts, Savoy, Kales, and Borecole, besides all the varieties known in gardens as Cabbage; and yet it is an accepted theory, I may say a positive belief, held by botanists, that all these various forms have originated from a single herb still to be found wild in places on our own coast, and somewhat more plentifully on the neighbouring coast of France. This plant is the Brassica oleracea of science, and is, I daresay, known to many of you. When we contemplate this seaside herb in comparison with its descendants in our gardens, the results brought about by cultivation are truly astonishing; but the surprise must be modified by the reflection on the length of time it has taken to accomplish them.

Let me quote another instance. The Potato was introduced from America three centuries ago, and has been generally cultivated for at least 200 years. Quite recently one of our most accomplished botanists, Mr. J. G. Baker of Kew, has investigated the tuber-bearing species of Solanum, and has expressed his belief that all the various forms of the cultivated Potato have originated from one species—viz., Solanum tuberosum. From these two instances we see plainly how remarkable are the changes brought about by the continuous cultivation of a single species, and at the same time how long a period, extending over many generations of human life, it takes to effect them. We can understand, too, from these same facts how it is that a plant or herb with properties rendering it suitable for food when improved by cultivation is rarely, if ever, taken in hand by horticulturists of the present day.

There are six known species of tuber-bearing Solanums, from one of which, *S. tuberosum*, as I said before, all our garden Potatoes have originated. Of the other five there is at least one that promises to be very valuable as the starting point of a new race of Potatoes, which, under the more scientific gardening of the present age, may be made to bring about satisfactory results in a much shorter space of time than it has taken to bring our present race of Potatoes, under the more primitive practice of our forefathers, to the perfection in which we have them. This is *Solanum Maglia*. I will quote Mr. Baker's words from the "Journal of the Linnean Society," vol. xx., page 507:—"As far as climate is concerned, it cannot be doubted that *Solanum Maglia* (or the Darwin Potato, as we might suitably christen it in England) would be better fitted to succeed in England and Ireland than *S. tuberosum*, a plant of a comparatively dry climate. We have indisputable testimony that *S. Maglia* and *S. Commersoni* yield readily an abundant supply of eatable Potatoes. What I would suggest is that these should be brought into the economic arena and thoroughly tested as regards their economic value, both as distinct types and when hybridised with the numerous *S. tuberosum* forms." It is very gratifying to know that the Messrs. Sutton of Reading are already busy in this direction.

The vegetables of the immediate future may possibly include the tubers of a Chinese species of *Stachys* (*S. tuberifera*) which was put into commerce two or three years ago by MM. Vilmorin et Cie. of Paris. The tubers have an agreeable flavour peculiar to themselves, but seem to require a few years of assiduous cultivation to develop them into a sufficient size to afford a remunerative crop.

This being the first time such a meeting as the present, with such an object, has been held, I hope you will agree with me that a brief review of our present position will not be out of place. Let us now, therefore, carry back our recollections of vegetable culture twenty-five to thirty years, a period still fresh in the memory of many of you, and try to ascertain approximately what progress has been made during that period, and in what direction it has chiefly tended. The garden vegetables cultivated a quarter of a century ago were much the same as now as regards kinds, and the comparison can thence be made without the introduction of any new element.

To begin with Peas. As the improvement obtained among these during the period in question will be the subject of a special paper, I

need only take a general review of the progress achieved. The varieties of Peas in commerce from twenty-five to thirty years ago were probably as numerous as at the present time. During the interval an uninterrupted stream of novelties have been offered to the public year after year, and during the same time upwards of a hundred names have disappeared from catalogues. Of the new varieties brought into cultivation in the period under review forty-two have been awarded first-class certificates by the Royal Horticultural Society, after having been grown in the comparative trials in the Society's garden, and most of these were subsequently put into commerce, but eight or ten of them have already disappeared. Besides these, a large number of new, or so-called new, varieties have been sent out without having been submitted to the test of the Chiswick trials; and, although some are acquisitions, many of them soon passed into oblivion, or were found to be synonymous with other sorts. Many of the older sorts, however, still hold their place; among such are notably Champion of England, Veitch's Perfection, Ne Plus Ultra, and British Queen—for quality and general usefulness these are difficult to beat; whilst we find such varieties as Early Emperor, Early Charlton, White and Blue Prussians, Waterloo tall Marrows, and others that could be named, which were once standard varieties and most largely grown, are now happily almost entirely superseded by the later acquisitions.

Under the general name of Brassica is included Cabbage, Broccoli, Cauliflower, Kale or Borecole, Brussels Sprouts, Savoy, a series of vegetables of the highest importance as furnishing a supply throughout the year. A review of what has been done in the way of improvement during the past quarter of a century must, however, be brief, taking them in the order named. Upwards of fifty names of Cabbage in seed lists thirty years ago are not now found there, and perhaps deservedly; but yet very few real acquisitions have been made since. Ellam's Dwarf Early Spring, certificated in 1884; Early Etampes and other varieties of French origin, valuable for spring sowing and main crops; and Early Offenham, a fine example of the old Enfield type, are all of comparatively recent introduction. The Broccoli family has always been a numerous one; as many as forty-five names have been noted in a seed catalogue published at the beginning of the period under review, but all are now lost to fame. Their place has, however, been taken by perhaps more than that number of new names, their greatest merit being the lengthening of the season. I must mention here the Cabbage-Broccoli called Chou de Burghley, raised and distributed by Mr. Gilbert of Burghley Gardens; and also the new form of sprouting Cabbage raised by Mr. McIndoe of Hutton Hall, both of which indicate a new departure. Among the newer Cauliflowers, the Autumn Giant, certificated in 1870, has stood the test of time, and is now an established favourite both in gardens and for market purposes; its introduction prolonged the season very considerably, while the Extra Early, certificated in 1880, has lengthened the season in the opposite direction by being grown in frames or under hand-glasses. Kales are not much appreciated south of the Tweed, although, after a severe winter, they may be relied on when everything else is crippled. Many selections have been offered during the past quarter of a century, but none much in advance of the old Green Curled. In Brussels Sprouts, on the contrary, a marked improvement has been made; but the Savoy has remained much as it was, with the addition of Early Dwarf Vienna, and Gilbert's Universal, certificated in 1884.

Among Beans not much has been done in the way of improvement. We still cultivate the same varieties of Dwarf French Beans as we did twenty-five years ago. Ne Plus Ultra among the early sorts, and Canadian Wonder among the long-podded late sorts, are the best introductions of late years; and among Runner Beans, Girtford Giant and The Czar, which were raised by Laxton, are the most prominent improvements. The French varieties of Butter Beans are, I think, deserving of more attention than they have hitherto received; as served in France they are certainly a great delicacy. Some of the old sorts of Broad Beans, as White Blossom, Red Blossom, and others, have nearly disappeared. Beck's Green Gem may be considered an improvement on the old Dwarf Fan; Seville Long-pod and Aquadulce, introductions from Spain, have certainly the advantage of producing very long pods, but it is doubtful whether they have so many beans in a pod as a well-selected stock of Hang-downs, of which Bunyard's new selection is perhaps the best.

After dealing with Potatoes, Mr. Veitch proceeded:—Turning to tap-root vegetables, we find that thirty years ago only three varieties of Beet were generally cultivated. Dell's Crimson, introduced in 1869, has, under many synonyms, taken the place of most of the older forms, while the Egyptian Turnip-rooted has been a welcome addition to the sorts for early use. Among Carrots the old sorts are still more or less cultivated, but selections from some of the French varieties, such as the Early Nantes, Guérande, and St. Valery, are now extensively grown. One peculiarity in some of the newer sorts should be noted—they are of a uniform bright red colour throughout, and destitute of the yellow core so familiar in the older kinds. Generally speaking, the improvement in Carrots has tended towards the production of earlier varieties, better shape, better quality, and greater weight of crop. The Parsnip being of so much more restricted use, naturally falls into a subordinate place, and the old sorts still hold their sway.

The season for garden Turnips has commenced earlier by the introduction in 1883 of the Extra Early Milan, which comes into use from ten to fourteen days before any other sort. Many of the old kinds of Onions are still the best, but among more recent and desirable varieties I may

mention the Rousham Park, the Queen, the Roccas and other Italian Onions, all useful introductions and much in demand of late years.

The Vegetable Marrow, one of the most popular and cheapest of vegetables when in season, has received at least two useful additions of late to the number of its varieties in Pen-y-Byd (the best in the world), raised by Mr. Muir, of Margam Park, Glamorganshire, a small round-fruited sort, and Hibbert's Prolife, a small egg-shaped variety. One of the first to improve the vegetable was the late Mr. Thomas Moore, of the Chelsea Botanic Garden, who raised Vegetable Cream.

A few other kinds of vegetables have yet to be noticed which, on account of some special requirements in their culture, are still restricted to gardens in which these necessary requirements can be provided, or can be grown on a large scale for market. Among these the fine form of Seakale called Lily White is an improvement both in colour and flavour on the old form with purple colouring. The Tomato is yearly increasing in popularity, and receives a corresponding increase of attention from cultivators; its season has been extended to almost throughout the year. Thirty years ago not more than four or five varieties appeared in seed lists, but now the enumeration of them fills well-nigh a whole page of some catalogues; without referring to any of them by name, the best of them are undoubtedly in advance of such old sorts as De Lave, Powell's Prolife, &c. The cultivation of the Mushroom has increased enormously of late years; it is perhaps no exaggeration to say that, for every pound produced by cultivation thirty years ago, upwards of a ton is so grown now.

I will take but a glance at the progress made in Saladings. In Lettuce, during the period under review, a multitude of varietal names have appeared and almost as rapidly disappeared. In the Cabbage Lettuce section the kind known as All the Year Round has proved a useful introduction, and retains its place as one of the best. Early Paris Market is one of the best early kinds, and is much cultivated. In the Cos section, Paris White, Hicks, Hardy White, and Bath Cos are among the most useful. In Celery, too, the list of names constantly increases, so that selection sometimes becomes difficult. Of the red varieties, Major Clarke's is one of the best of recent introduction, and, among the white kinds, Turner's Incomparable White (syn. Sandringham) holds its own. The finest addition to the varieties of Endive is the Improved Brown-leaved Batavian, certificated in 1878; this is by far the best of the broad-leaved forms.

Among Radishes the best improvements come from France; the extra-early Turnip varieties are useful for growing in frames, whilst the white-tipped olive-shaped, or French Breakfast, is one of the most largely grown. Although the Cucumber is properly a fruit, it is practically looked upon as a salad. Here again, as in the case of many other popular vegetables, the multitude of names is bewildering. Rollison's Telegraph and Douglas's Tender and True are both standard sorts.



MARÉCHAL NIEL ROSE.

I SEND you a few blooms of Maréchal Niel Rose, cut from plants one year old from cuttings, with a brief note as to how such results are obtained.

A deep box (an old tea chest, for instance) is procured, in which are placed 2 inches of drainage, 2 or 3 inches of light soil, with a surfacing of silver sand, and a square of glass to fit closely. Now as to cuttings. They consist of the remaining portion of the flower stalk after the flower has been cut, taken off back to the old wood with a heel, shortened to one or two joints if necessary, but the leaves left intact. They are inserted in the said box, a good watering is given through a fine rose to settle the soil about them. They are covered closely with the square of glass, plunged in the manure of a Melon or Cucumber frame where there is a good bottom heat, and shaded from sun. We occasionally examine them, removing decaying leaves, and giving a sprinkling of warm water.

As soon as rooted they are placed singly into 3-inch pots in a compost of loam, leaf soil, and sand, and returned again to the frame, placing them as far from the point where air is admitted as possible, and shade till established. Then they are gradually inured to cooler treatment and have the benefit of full sunshine. As soon as the pots are filled with roots the plants are shifted into 6-inch and finally into 8-inch pots, which will well accommodate them to flower in, using a mixture of good strong loam, old mortar rubbish, and a small portion of leaf soil rammed into the pots.

The treatment here indicated, together with a free use of the syringe, plenty of air, unobstructed light, the judicious use of some fertiliser, and liquid manure occasionally when the pots are filled with roots, will result in good stems capable of giving a score of first rate blooms. One shoot only should be taken up with no stopping whatever, just the unripe point is taken off at the winter pruning, and ours are kept entirely under glass. I may add that from eight

plants grown as here described we are taking 150 blooms.—T. CROSSWELL, *Homewood, Eden Park, Beckenham.*

[Remarkably fine were the blooms received, substantial, clean, and sweet. The foliage also was most vigorous.]

ROYAL HORTICULTURAL SOCIETY.

MAY 13TH.

A LARGE portion of the Drill Hall at Westminster was filled with plants and flowers at the meeting on Tuesday last, the exhibits being varied in character, and comprising many novelties of interest. At the afternoon meeting Mr. W. Goldring, who has just returned from India, discoursed upon "Spring Flowering Trees and Shrubs" to a large and appreciative audience.

FRUIT COMMITTEE.—Present: Sir Chas. Strickland, Bart. (in the chair), and Messrs. R. D. Blackmore, Harrison Weir, T. Francis Rivers, J. Cheal, W. Bates, G. W. Cummins, T. J. Saltmarsh, G. Bunyard, P. C. M. Veitch, G. Wythes, H. Balderson, F. Q. Lane, and James Hudson. The work of this Committee was extremely light on this occasion, for the exhibits were few, and small space at the end of a table sufficed to hold them. The Right Hon. Lord Foley, Ruxley Lodge, Esher (gardener, Mr. Miller), contributed some fine specimens of Mushrooms, also some Asparagus (vote of thanks). J. Butler, Esq., Warren Wood, Hatfield (gardener, Mr. G. Aslett), sent two dishes of Alexander Peaches, large well coloured fruits (vote of thanks). Mr. E. Chopping, Milton, exhibited specimens of Bugg's Apricot Pippin; Col. T. P. Turberville, Ewenny Priory, Bridgend, showed a green flesh Melon; and from the Society's gardens at Chiswick came a collection of Broccolis. A first-class certificate was awarded for the following:—

Veitch's Model Broccoli (W. C. Leach, Albury Park, Guildford).—A solid white-headed variety of good quality, of moderate size, and well protected with long leaves.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. R. Dean, B. Wynne, H. Herbst, T. Baines, C. T. Drury, H. B. May, W. C. Leach, G. Mawley, H. Cannell, R. B. Lowe, Lewis Castle, G. Paul, W. Holmes, G. Nicholson, and Rev. D'Ombrian.

Many novelties were submitted to the judgment of this Committee, and a considerable proportion of these had to be passed without any award; indeed, in one or two cases it was surprising that the exhibitors had not exercised more discernment before taking the trouble to bring their "novelties" into public with the expectation of receiving any recognition. From the Royal Gardens, Kew, came an extensive collection of flowering specimens of hardy trees and shrubs, representing many of great beauty, though their attractions cannot be seen to the best advantage in small pieces arranged in bottles or other vessels. Mr. R. Irwin Lynch, Curator Botanic Gardens, Cambridge, also exhibited plants of *Arisæmas*, *Asarums*, and *Aristolochias*, including some very interesting species.

Messrs. J. Veitch & Sons, Chelsea, contributed a small group of *Phyllocactus* varieties and the bright red flowered *Epiphyllum Gaertneri*, but although the former included two excellent varieties, one bright crimson named *Admiration*, and the other a soft rose named *Delicatus*, the Committee did not accord them any special recognition. When plants become unpopular it is very difficult to restore them to favour again, and beautiful as many of the *Phyllocactus* and *Cereus* undoubtedly are, nurserymen and the public look at them with little enthusiasm. Mr. Poupart, Twickenham, sent three large pots of Lilies of the Valley bearing long spikes of flowers (cultural commendation). Messrs. Ryder & Son, Sale, showed a group of Japanese *Primulas* similar to those at the Crystal Palace on the previous day. Mr. F. Hooper, Bath, exhibited flowers of the large white Pink Her Majesty and a collection of Pansies (bronze medal). Mr. R. Dean showed some Alpine Auriculas; Mr. Simpkins, Camberwell, sent a new white Zonal Pelargonium named Miss F. Measures; Messrs. H. Cannell & Son, Swanley, exhibited a choice collection of Zonal and Show Pelargoniums with fine Pansies (bronze medal).

Messrs. W. Paul & Son, Waltham Cross, exhibited blooms of a new Hybrid Perpetual Rose named Denmark, of similar colour to La France, but different in the form of flower and the foliage, and the Committee asked to see it again. Plants of the white Tea Rose The Queen and Souvenir de S. A. Prince for comparison, and the Committee was asked to express an opinion regarding the identity of the two Roses. This, however, they declined to do, but as they were shown, and compared also with the blooms from Mr. G. Prince of the Souvenir there is a strong resemblance between them, and it is possible the National Rose Society will find an opportunity of dealing with them, as they will probably go into the list of too much alike Roses if both names are retained.

Mr. Forbes of Hawick sent a large collection of his best Pansies, for which a bronze medal was awarded. Messrs. Barr & Son had a group of Daffodils and hardy flowers (bronze medal).

Messrs. J. Veitch & Sons also had some hardy shrubs and trees, such as *Sedum latifolium*, *Abies excelsa mutabilis*, a new *Cydonia*, and a Juniper, for which certificates were awarded. Messrs. Paul & Son, Cheshunt, had a most interesting collection of flowering tree and shrub specimens, Azaleas, Rhododendrons, and Lilaes being well represented (silver medal); and Messrs. Kelway & Son, Langport, showed numerous boxes of fine *Pæonies* and *Pyrethrums* (silver-gilt medal).

ORCHID COMMITTEE.—Present: Sir Trevor Lawrence, Bart., M.P., in the chair, and Messrs. S. Courtauld, F. Moore, H. J. Veitch.

J. Sander, H. M. Pollett, E. Hill, J. Douglas, H. Williams, H. Ballantine, T. B. Haywood, and C. Pilcher.

An excellent group of plants of *Cypripedium barbatum* came from the Duke of Northumberland (gardener, Mr. Wythes), for which a vote of thanks was accorded, though a medal, or at least a cultural commendation, would have been an appropriate recognition. There were eighteen plants, all well grown, and bearing fine flowers of rich colour. N. N. Sherwood, Esq., Dunedin, Streatham Hill, showed an excellent plant of *Phalænopsis grandiflora* with good blooms, and a deeply coloured *Odontoglossum crispum*. Mrs. Studd, 4, Royal Crescent, Bath, sent a specimen of a variety of *Lælia purpurata* named Studdi. From Sir Trevor Lawrence, Bart, M.P., Dorking, came an example of *Lælia purpurata Brysiana*, the flowers beautifully coloured. R. J. Measures, Esq., Camberwell, showed a fine plant of *Masdevallia ignea Southgatei* having numerous bright orange-red flowers, also a diminutive species, M. O'Brieniana, with small yellowish flowers, and *Cattleya Mendeli Venus* with pale delicate, but charming flowers (vote of thanks.) Mr. James O'Brien exhibited a plant of *Disa tripetaloides* with small, pale mauve-spotted flowers.

G. Burnham, Esq., 17, Paget Road, Stoke Newington, sent plants of *Cymbidium albucastrum*, with long spikes of small yellowish green flowers, and *Dendrobium thyrsoflorum*, having ten long racemes. Mr. Lucien Linden, Brussels, exhibited a pure white *Odontoglossum crispum virginale* (vote of thanks), *Dendrobium Gallicanum*, in the style of *D. thyrsoflorum*, but with longer flowers and looser racemes, and *Cattleya Warocqueana*, which some thought resembled *C. Warneri*. Messrs. Sander & Co., St. Alhans, exhibited a plant of a handsome *Odontoglossum* excellens, named Albert Edward (vote of thanks). G. Cooke, Esq., Kingston Hill (gardener, Mr. J. D. Cullimore), had plants of a light coloured *Lælia purpurata*, and a richly tinted *Cattleya Mossiæ* (vote of thanks). A. G. Smith, Esq., Silvermere, Cottenham (gardener, Mr. J. Quarterman), had a good plant of *Cypripedium barbatum*; H. Balderson, Esq., Hemel Hempstead, showed *Cattleya Warneri*; Sir Chas. Strickland sent *Cattleya citrina* (vote of thanks); and Messrs. Pitcher & Manda, Hextable, showed a collection of hardy *Cypripediums* and other Orchids.

CERTIFICATED PLANTS.

Cytisus scoparius var. Andreanus (Sir Trevor Lawrence, G. Paul and Son, and J. Veitch & Sons).—A handsome distinct variety of the common Broom, which has been already shown elsewhere, and certificated under the name of *Genista Andreanus*. With this name it also appeared at the Drill Hall in the collections for the three exhibitors above named, but in the Kew collection it had the name here adopted. It is said to be a variety of the common Broom, and was found wild in Normandy and elsewhere. It was sent out by a French firm, and has appeared in some lists with the name *Genista bicolor*. The flowers are large, bright yellow, with the "alæ" or wings—an easily distinguished portion of a papilionaceous flower—being a rich reddish brown, a striking contrast with the other portion of the flower.

Calla Elliottiana (Mr. G. M. Knight, Farnborough Park).—A remarkable Aroid, with large deep green leaves spotted with white, and a fine rich yellow spathe; a decided advance upon any so-called yellow *Arum* yet exhibited.

Odontoglossum maculatum, dark variety (W. C. Atkinson, Esq., Liverpool).—A variety with large, well formed flowers of an extremely dark colour.

Blandfordia nobilis imperialis (F. Sander & Co.).—A superior form of a handsome plant, the flowers large, drooping and bell shaped, rich orange red and yellow, the leaves long, narrow and grass-like.

Pansy Eynsford Yellow (Messrs. Cannell & Sons).—A good bedding variety with deep yellow flowers of good shape and freely produced (award of merit).

Cydonia japonica var. Moorlezi (J. Veitch & Sons).—A variety with large soft red flowers, but chiefly remarkable for its floriferousness and the long period during which it continues flowering.

Juniperus canadensis aurea (J. Veitch & Sons).—A dwarf variety, the young growths tipped yellow.

Pæony Beatrice Kelway (Messrs. Kelway & Son).—A tree Pæony, with large white single flowers of a cupped form, and very handsome.

Cælogyne tomentosa (R. J. Meadows, Esq.).—Flowers with narrow sepals and petals of a pale terra cotta tint, borne in long drooping racemes, the plant shown having five of these.

Lunaria biennis variegata (Messrs. Cutbush & Son).—The deep purplish crimson flowers of this plant contrasted strangely with the variegated foliage. Very distinct.

Enkianthus campanulatus (J. Veitch & Sons).—An interesting little shrub of compact habit, with numerous small bell-shaped reddish flowers, like diminutive *Abutilons*.

Acer Prince Hendjery (Paul & Son).—A beautiful variety of the common Sycamore, with bronzy coloured leaves; very attractive at this time of year.

CRYSTAL PALACE SHOW.

MAY 10TH.

THE annual Exhibition of plants at Sydenham in May has acquired considerable fame amongst competitive shows, and at one time constituted an imposing display of the gigantic trained specimens which have astonished so many thousands of visitors. It has been evident, however, for some years that the number of these specimens is gradually being reduced, and this was indicated at the Palace Show on Saturday.

The competition in what are termed the leading classes for specimen plants was restricted to few exhibitors, and even they, with some exceptions, were not showing in their best style. Fortunately, however, in the smaller classes the exhibits and competition were excellent, and though in the general arrangement they were rather too much scattered, yet even that is preferable to undue crowding which too frequently takes place at shows of this character. The Palace is splendidly adapted for large shows, but small ones are lost there, and require concentration to produce a satisfactory effect.

STOVE AND GREENHOUSE PLANTS.—The only nine plants came from Mr. Chapman, The Gardens, Hawkesyard Park, Rugeley, his best specimens being *Erica profusa* in excellent condition and well flowered, *Tremandra ericæfolia* fresh and good, *Anthurium Schertzerianum*, two small *Ixoras*, and *Statice profusa*. An ill-formed *Hedera* and a poorly flowered *Erica Cavendishiana* would have spoiled the collection in a moderate competition. With six plants Mr. Chapman was again first, Mr. Offer, The Gardens, Handcross Park, Crawley, taking the second prize, but neither had any very remarkable plants. Mr. C. Turner, Slough, was the premier exhibitor of *Azaleas*, securing first honours both for eighteen and nine plants, fresh, neat, moderate size plants of a most useful character. Orchids were represented by few plants. Mr. J. Douglas, gardener to Mrs. Whitbourne, Great Gearies, Ilford, was awarded the second prize for nine and the first for six, but they do not call for special description. Mr. Douglas was also first with an ordinary *Dendrobium nobile*, and Mr. W. Finch second with *Lycaste Skinneri alba* bearing two flowers, in the single specimen class. For a single specimen greenhouse plant in flower Mr. Turner was first with *Azalea Duc de Nassau*, very handsome and well flowered, Mr. Chapman following with *Tremandra ericæfolia* also in good condition, the same exhibitor being first with a single stove plant in flower, showing *Ixora Dixiana*.

Roses constituted a pleasing portion of the Exhibition, and the centre transept round the band stand, by the orchestra, and in front of the stage, they had a charming effect. Messrs. W. Paul & Son's non-competing group must have prominent mention here, as it included a number of well-grown plants tastefully arranged, and comprising some choice varieties. In the class for eighteen Roses in pots Mr. C. Rumsey, Waltham Cross, secured premier honours with admirable plants bearing fine blooms, *Beauty of Waltham*, *Thomas Mills*, *Madame Gabriel Luizet*, *Dr. Andry*, and *Centifolia Rosea* being notable. Messrs. Paul & Son, Cheshunt, were second with a collection of nearly equal merit, particularly fresh, and Mr. C. Turner was third with rather smaller but healthy plants. Pelargoniums of both show and fancy varieties were chiefly exhibited by Messrs. Turner and Phillips, the prizes being nearly equally shared by them. The plants were in good condition, but the flowers suffered much during the day.

Calceolarias were largely shown, no less than five competing in the class for eighteen plants. Mr. Ford, Wexham Park Gardens, Slough, took the lead with excellent specimens, compact yet vigorous plants, bearing large richly coloured flowers. Mr. Mursell, gardener to Mrs. Burton, Town House, Streatham, was a good second, and Mr. Slater, North House, Sydenham, was third. For twelve Calceolarias the prizes were secured by Messrs. Ford, Guyett, and Long in that order. *Gloxinias* were fairly represented.

FINE-FOLIAGE PLANTS.—The exhibits in these classes were generally marked by a deficiency of colour, the *Crotons* and *Dracænas* especially. Perhaps the best class of all was that for *Caladiums*, in which Messrs. J. Laing & Son won the first prize with nine grand specimens capitally grown, and with the finely developed leaves delicately and beautifully coloured. Very remarkable were *Comtesse de Condeixa*, *Mithridates*, *Clio*, *L'Automne*, *Ferdinand de Lèsseps*, *Leopold*, *Robert*, and *Triomphe de l'Exposition*. Mr. J. Day, gardener to W. E. Gover, Esq., Casino House, Herne Hill, was second with smaller but good specimens. For nine fine-foliage plants and the same number of Ferns Mr. Offer gained the first prize without any difficulty, his plants being large, and in the case of the Ferns, especially the *Cyatheas* and *Dicksonias*, uncommonly healthy and good. He was also first for nine *Crotons*, *angustifolius*, *Morti*, and *Weismanni* being the best for colour. Mr. Bird, Lodgemore Gardens, Dulwich, was the leading exhibitor with nine *Dracænas*, *Lindeni* being his finest plant as regards colour. Messrs. Offer, J. Hudd, Gordon House Gardens, Blackheath, and J. Lambert, Elfindale Lodge Gardens, Herne Hill, exhibited fairly well in this and other classes for *Dracænas* and *Crotons*. Mr. Ford had the best six fine-foliage plants, and was followed by Mr. Hudd.

Table plants contributed a good class, seven competitors staging eighteen plants each, and the majority of these were exactly adapted for table decoration, being of moderate size, light, graceful in habit, and bright. Mr. C. Lane, gardener to E. H. Coles, Esq., Burntwood, Upper Caterham, succeeded in winning the chief award with excellent plants in small pots. The best were *Crotons Laingi*, *interruptus*, *Dormanianus*, and *Lady Zetland*; *Cocos Weddelliana*, *Dracæna superba*, and *Cyperus alternifolius variegatus*. Mr. Sullivan, gardener to D. B. Chapman, Esq., Downshire House, Roehampton, was second with rather larger plants; and Mr. Simmonds, gardener to F. W. Wiltshire, Esq., Alverstone, South Norwood, was third with neat but somewhat small plants.

CUT FLOWERS.—The floral decoration department is invariably a feature at the Crystal Palace summer Shows, and on Saturday last there was an interesting and tasteful display. In both bouquet classes Messrs. Perkins & Son of Coventry were first with beautiful arrangements of choice flowers, Mr. G. Newman of Bromley following closely in each class with six examples. For six buttonholes Mr. Newman

succeeded in defeating Messrs. Perkins, gaining premier honours for charming sprays, &c., Orchids and Roses being chiefly employed. Messrs. Perkins and J. Peed & Son were second and third. Mr. H. Bawtree had the best three stands of flowers, and Mr. Prewett of Hammersmith the best twenty-four bunches of cut flowers.

Miscellaneous exhibits were numerous and of remarkably good quality. Messrs. Paul & Son, Waltham Cross, had, as already noted, a magnificent group of Roses in pots; Messrs. Sutton & Sons, Reading, contributed an exceptionally fine display of *Calecolarias*, representing their "Perfection" strain, and a group of the Cloth of Gold variety; Messrs. Laing & Sons, Forest Hill, had a group of choice tuberous Begonias, several of which were certificated; Messrs. Paul & Son, Cheshunt, showed a group of hardy flowers; Messrs. Barr & Son, Covent Garden, sent a collection of Daffodils and hardy flowers; Messrs. J. Peed & Sons, Roupell Park Nursery, had a tasteful exhibit of floral wreaths, crosses, sprays, buttonholes, &c., also a group of *Sarracenias*, *Anthuriums*, and *Cypripediums*; Mr. T. S. Ware showed a collection of Daffodils and spring flowers; Messrs. Ryder & Son, Sale, sent examples of their Japanese *Primulas*, varieties of *P. eortusoides*; Messrs. Balchin & Son, Brighton, showed plants of the brilliant blue *Leschenaultia biloba major*, and Messrs. J. Carter & Co. exhibited plants of Wallflowers, Miss Primrose Carter, pale yellow, and Golden Bedding, deep orange. Certificates were awarded for the following *Primula eortusoides*:—Queen of the Whites, Ruby Queen, Harry Lee, Alba magnifica, Leo H. Grindon, and Mrs. Ryder, from Messrs. Ryder and Son, which have been previously noted, also for those here described.

Begonia Beauty (J. Laing & Sons).—Double crimson, with a creamy centre; very full and distinct.

Begonia Mammoth (J. Laing & Sons).—An enormous double scarlet flower; very massive, and aptly named.

Begonia Rosy Mari (J. Laing & Sons).—A rich clear rose, finely formed flower.

Begonia alba plena compacta (J. Laing & Sons).—Flower double, very large, of good form, and pure white; compact and dwarf in habit, but very floriferous.

Genista Andreanus (Paul & Son).—A novel and peculiarly handsome hardy shrub of slender graceful habit, with small leaves, and large bright yellow flowers, having the "wings" a rich reddish brown, contrasting well with the other portion of the flower.

Rose Corrinna (W. Paul & Son).—A Tea Rose, with substantial flowers of a bronzy or rosy salmon hue, very distinct, and tint that is likely to please many.

Anthurium Schertzerianum sanguineum (J. Peed & Son).—A fine variety, with large broad well-shaped spathes of a rich colour.

ROYAL BOTANIC SOCIETY.

MAY 14TH.

WHEN a Society has once secured a reputation for liberal encouragement of exhibitors it can ensure shows of a highly satisfactory character, comprising the best examples of cultural skill to be obtained either in plants, fruits, or vegetables, and therefore possessing some educational value. When, too, a Society confines itself entirely to the show element in horticulture it is more than ever necessary to render the exhibition as complete as possible. It is therefore a most dangerous policy to start considerably reducing prizes without making some corresponding alterations in the classes. This course has been adopted by the Council of the Royal Botanic Society in recent years, and the result is that the character of the once famous shows is rapidly changing. Exhibitors complain that the second and third prizes offered in the large specimen classes will not pay the expenses of carriage, and the consequence is the chief awards are left to a few who practically make exhibiting a trade. Certain specimens are grown to be conveyed to as many shows as possible, and the grower is expected to be able to show a favourable balance at the end of the year. Were this confined to nurserymen it would be perfectly legitimate, but when amateurs take up such a method of procedure it is at least somewhat degrading to genuine horticultural enthusiasm.

The schedules of the Royal Botanic Society require a thorough revision and considerable alteration to render them in accordance with the times, and many would gladly welcome some indication of energetic action in popularising the work of the Society.

The summer shows held in the spacious marquee are, of course, invariably attractive; the contour of the ground and the style of the place altogether are unsurpassed in producing tasteful floral effects. The courteous Superintendent, Mr. Coomber, knows well how to take advantage of the capabilities of the situation, and he has earned a well merited reputation for skilful arrangement. At the Show held yesterday (Wednesday), the usual style was adopted with excellent results. Flowers and foliage, bright and soft colours, were contrasted or associated with most satisfactory results, but still that essential element in a first-rate horticultural show, keen and abundant competition, was wanting, and this detracted from the interest of an otherwise fine display. Miscellaneous non-competing exhibits were, as they always are, very numerous. These help greatly in a popular show; something more is needed in one based upon competitive classes.

Orchids have been strongly represented at some of the shows, but on this occasion they were few, only two collections in competition were entered. Mr. T. Whellans, gardener to the Duke of Marlborough, was first with twelve Orchids, remarkably fine specimens of *Cypripedium*

selligerum majus, eight flowers, *Cattleya Mendeli*, fifteen flowers, *Lælia purpurata*, nine racemes, *Odontoglossum sceptrum*, five strong racemes of large flowers, *Cypripedium Lawrencianum*, thirty-two flowers, *Cattleya Lawrenceana*, well flowered, *Dendrobium thyrsoflorum*, a very large specimen, *Odontoglossum vexillarium*, *Cypripedium caudatum*, with about forty flowers, *Cattleya Mendeli*, *Dendrobium Jamesianum*, and *D. suavissimum*. Henry Little, Esq., Baronshall, Twickenham, gained similar honours for a group of Orchids tastefully arranged with Ferns on a bank.

Pelargoniums furnished much bright colour, and the groups and corner banks had a capital effect. Mr. C. Turner, Slough, and Mr. D. Phillips, Langley Broom, Slough, were the prizetakers as usual in open and amateur classes, their plants being in excellent condition and well flowered. Hardy herbaceous plants and alpine were shown by Messrs. Paul & Son, Cheshunt, and the first prize was secured in each class with admirably representative collections.

Roses were good, especially the premier nine from Messrs. Paul and Son, large healthy plants, good alike in foliage and flowers. Beauty of Waltham and Catherine Soupert were notable for their fine condition. Exhibitors in other classes were Mr. W. Rumsey, Mr. J. F. Mould, and Mr. C. Turner, who had smaller but good plants. Mr. Rumsey, Waltham, was first in the class for twenty Roses, similar to those shown at the Crystal Palace on Saturday.

Azaleas were bright and effective, particularly the premier six from Mr. C. Turner, large conical specimens bearing abundant flowers. The second prize plants in the same class from Mr. James were not fully out, and one plant was very thin. In the amateur class for six Azaleas Mr. Offer had some well grown plants bearing numerous flowers. Model, Duc de Nassau, and Roi d'Hollande were unusually fine.

Stove and greenhouse plants were deficient in several classes, and some were much inferior to those usually seen in large classes. Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, had the best ten specimens, and these constituted a fine group on one of the slopes, *Ericas*, *Ixoras*, *Staticee*, *Tremandras*, *Dracophyllums*, and *Anthuriums* having a capital effect. The same exhibitor was also first with six stove and greenhouse plants of similar size. Mr. J. F. Mould was also first for six specimens in the nurserymen's class, fairly good plants and well flowered. He was also second with twelve plants.

Mr. Offer, Handcross Park Gardens, Crawley, was first with six large Ferns, healthy finely developed specimens; with nine *Dracænas*, moderate sized plants, furnished with leaves to the base; with six Azaleas, small globular plants, crowded with flowers, being followed by Mr. T. Lockie, Oakley Court Gardens, Windsor, and Mr. James, the latter showing very poor plants. Mr. Offer also had the best six fine-foliaged plants, comprising gigantic *Cycas revoluta*, *C. circinalis*, *Enecephalartos villosus*, *Croton Warreni*, *Croton undulatus*, and *Dasyliroton acrotriehum*. Mr. H. James, Castle Nursery, had the best six Heaths, small but healthy plants. He was also first for twelve stove and greenhouse plants, and second with six, but they were not of special merit.

MISCELLANEOUS EXHIBITS.—As already indicated these were very numerous and of capital quality, varied and beautiful groups occupying considerable space in the marquee. Three of the central stages were devoted to contributions of this character, and these were unsurpassed in the whole show for interest and effect. Messrs. B. S. Williams and Son, Upper Holloway, had a grand group of Orchids and fine-foliage plants (silver-gilt medal). Messrs. J. Laing & Sons, Forest Hill, had a charming group of *Caladiums*, Tuberous Begonias, Azaleas, Orchids and Ferns (silver-gilt medal). Messrs. Wm. Paul & Son, Waltham Cross, had a superb group of Roses in pots and a large collection of cut Roses (large silver medal). Mr. T. S. Ware, Tottenham, had a large collection of hardy plants (small silver medal). Messrs. Paul & Son, a group of Lilaes, shrubs, *Rhododendrons* and Azaleas (bronze medal). Messrs. Ryder & Son, Sale, a collection of Pansies and Japanese *Primulas*. Mr. G. James, Slough, had a group of *Calecolarias* (large bronze medal).

Messrs. J. Veitch & Sons, Chelsea, showed a large choice group of plants similar to those at the Drill Hall on the previous day; Mr. C. Turner, Slough, had a group of fine *Lilium Harrisii*; Mr. J. Walker of Thame two boxes of *Maréchal Niel* Rose blooms; Messrs. Kelway and Son, Langport, had a large group of *Pæonies* and hardy flowers; Messrs. Barr & Son showed Daffodils and hardy Ferns; Mr. J. Forbes, Hawick, a collection of Pansies; and Messrs. Balchin & Son, Hassocks Gate, a group of *Leschenaultia biloba major*.

Certificates were awarded for numerous plants, some of which have been previously honoured elsewhere, and one at least had been certificated by the Judges at the summer Show of the Royal Botanic Society last year under another name. Some of the plants distinguished were as follows:—*Cypripediums Elliottianum* (Low & Co.), *Acer Prince Hendjery* (Paul & Son), *Cattleya Mendeli alba* (Mr. White), *Genista Andreanus*, *Acer japonicum laciniatum*, and *Nephrolepis cordata laciniata* (J. Veitch & Sons), *Calla Elliottiana* (Knight), *Abies excelsa mutabilis*, *Juniperus japonica aurea* (J. Veitch and Sons), *Syringa grandiflora alba* (Kelway), *Trolius caucasicus aurantiacus* (T. S. Ware), *Tulipa elegans alba* (Barr).

SCOTTISH AURICULA AND PRIMULA SOCIETY.

THE fourth Exhibition of the Scottish Auricula and Primula Society was held in the City Assembly Rooms, Dundee, on May 8th. There was a large and good collection, and the attendance of the admirers of this special flower was excellent, the various points being criticised keenly.

The Show was formally opened by Robert Cathcart, Esq., of Pitcairnie, in a neat speech, in which he expressed the hope that the taste for the Auricula would spread. My colleague, Mr. J. Morris of Dundee, and myself when judging the plants came to the conclusion that the quality was an improvement on last year, the closest attention to the various points being necessary repeatedly to decide the awards.

In addition to the prizewinners which are named below, Mr. J. Morris exhibited a collection of twelve exceedingly well grown Auriculas, having fine blooms, including selfs—Morris's Fidelity, King Lea, and Blue Gown, Duke of Argyll, Barlow's Mrs. A. Potts (a grand bloom of the finest self in commerce). The Secretary, Mr. W. Stratton, Dundee, to whom most of the success of this Show is due, had a good display of plants, which, with Calceolarias from Miss Cox, some interesting Orchids from Mr. Mudie, and miscellaneous plants from the local nurserymen, added much beauty and variety to the Show, which had a most pleasing effect. The Scottish Society have the use of a room for this Show, which is far superior to those used by the southern societies.—F. POHLMANN.

PRIZE LIST.

Class A, six dissimilar Auriculas.—Mr. W. Kilgour, Blair Drummond, first with Mrs. Potts, Beeston's Apollo, George Lightbody, Lancashire Hero, Acme, and Kilgour's Andrew Millar; Mr. J. D. Kerr, Douglasfield, second with Acme, George Lightbody, Black Bess, F. D. Horner, Col. Taylor, and George Rudd; Mr. James Black, East Calder, third with George Lightbody, Brunette, John Simonite, F. D. Horner, Mrs. Potts, and Mrs. Dodwell.

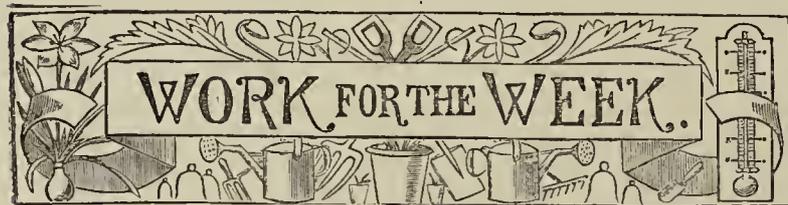
Class B, four dissimilar Auriculas.—First, Mr. W. Kilgour, with Talisman, Acme, Blackbird, and Geo. Rudd; second, Mr. J. D. Kerr, with Acme, Blackbird, Geo. Lightbody, and Col. Taylor; Mr. W. Stratton, Dundee, third with Lancashire Hero, Acme, Blackbird, and plant unnamed, possibly Alex. Meiklejohn.

Class C, two dissimilar Auriculas.—Mr. W. Kilgour first with Geo. Lightbody and F. D. Horner; Mr. J. Kerr second with Acme and Geo. Lightbody; Mr. J. Menzies, Duns, third with Acme and Mrs. Erskine.

Single specimens.—Class D, one green edge.—First Mr. J. Menzies, Duns, with Prince of Greens (this was also premier of its class and premier of the Show); second, Mr. W. Kilgour, with Rev. F. D. Horner, and third with Lancashire Hero. Class E, one grey edge.—First, Mr. J. D. Kerr, with Alex. Meiklejohn, second with Geo. Rudd, third with Geo. Lightbody. Class F, one white edge.—First, Mr. W. Kilgour, with John Simonite, second with Regular, third with John Simonite. Class G, one self.—First, Mr. W. Galloway, with Patronella; second, Mr. J. Menzies, with Black Bess; third, Mr. W. Kilgour, with Heroine.

Premier green, Prince of Greens, from Mr. J. Menzies; premier grey, Geo. Lightfoot, from Mr. W. Kilgour; premier white, Acme, from Mr. W. Kilgour; premier self, Mrs. A. Potts, from Mr. W. Kilgour. Seedling selfs, special prize.—First, Mr. W. Kilgour, for Vidette (certificated), and Cornet (certificated).

Alpine Auriculas, six dissimilar.—First, Mr. W. Kilgour; second, Mr. J. Menzies. Four dissimilar.—First, Mr. W. Storrie; second, Mr. J. Black. Six gold-laced Polyanthus.—Mr. J. Menzies. Six dissimilar, Fancy.—First, Mr. W. Stratton; second, Mr. O. Stratton.



FRUIT FORCING.

PINES.—Attention to details is very essential in fruit, particularly in Pine Apple culture, at this time of the year, when the weather is changeable, especially as regards plants with the fruits in an advanced state, a moderately moist atmosphere and high temperature being necessary to their well-being, which condition renders them more susceptible of injury, the effects of sudden outbursts of sun telling disastrously, especially upon the crown, which is not infrequently scorched if the ventilation is not carefully attended to. Large well-finished fruits are only to be obtained by attention to details, especially when the plants are cultivated in pots. Watering will require attending to once a week, but avoid indiscriminate periodical waterings. Plants that have heat at the roots by means of hot-water pipes need more water than those having the heat furnished by means of fermenting materials. The former should have water as often as required, on every occasion employing some stimulant; 1 lb. guano to 20 gallons of water is a suitable quantity. Amit air at the top of the house, maintaining the temperature during the day at 80° to 90°, closing at 85°, but unless it be desirable to enlarge the crowns do not quite close the houses. Fire heat must be employed to prevent the temperature falling below 70° at night, and to raise it to 75° in the day, the bottom heat being kept at 80° to 90°. Syringe the house and plants two or three times a week according to the weather, and maintain the atmosphere in such a condition as to secure the perfect development of the fruit.

PEACHES AND NECTARINES.—*Trees Started at the New Year.*—The fruit is in the last stages of stoning, and must not be subjected to a higher temperature by artificial means than 60° to 65°, commencing

to ventilate early and at 65°, not allowing 75° to be exceeded without full ventilation. Tie in the shoots as they advance, removing superfluous growths, as it is important no more be trained in than can have full exposure to light and air. If the shoots are crowded thin them well as soon as the stoning is completed. Allow one fruit to every square foot of trellis covered with foliage, which will be one to every shoot of last year, although vigorous shoots may be allowed to carry two fruits. By apportioning the fruit to the vigour of the trees or degrees of vigour in different parts the evenness of vigour may be maintained throughout the tree. After stoning, maintain adequate moisture in the house, watering the inside border copiously, which in well drained borders will be required at least once a week, mulching the surface with about 2 inches thickness of short half-decayed manure. Unless it is desired to accelerate the ripening, continue 60° to 65° as the night temperature, and 65° by day artificially in dull weather, and 75° with sun heat, closing at the latter with plenty of moisture. In a high temperature and moist atmosphere Peaches swell to a great size after stoning, but are not so tempting in appearance nor so well flavoured as those in less heat and moisture with freer ventilation.

Trees Started in February.—The fruit of these will soon be commencing stoning and should have the number reduced, leaving two fruits on strong shoots, but one will be sufficient on the weaker. The fruit in all instances must be the best situated for receiving air and light. Thin the shoots where crowded. The temperature by artificial means may be kept at 55° to 60° at night, and 60° to 65° by day artificially, ventilating from 65°, and fully between 70° and 75°.

Trees Started in March.—The fruits are swelling and require to be freely thinned. It can now be seen which have taken the lead. Two or three will be ample to leave on strong shoots, and less on weak shoots. Afford liquid manure to weakly trees, but vigorous trees being more prone to cast the fruit must have clear water only. Remove all superfluous shoots, the remaining growths being trained to the trellis as they advance.

Late Houses.—The fruits are well set, and syringing will be needed in the morning and early afternoon, but on fine days only, to rid the fruits of the remains of the blossom. Commence thinning when the fruits are the size of horse beans, removing the smallest and worst placed, leaving very few more than will be required for the crop. Disbudding and heeling in the shoots must be carefully attended to. A temperature of 50° at night will be safe, and 55° by day artificially, ventilating freely above that unless it is desired to hasten the crop, when a temperature of 55° at night and 60° to 65° by day artificially may be secured, with 70° to 75° by day, ventilating from 65°.

Unheated Houses.—The promise of an abundant crop seems assured, the set being good, nine-tenths too many for a crop. A moderate syringing on fine mornings will be a great assistance in ridding the fruit of the remains of the blossoms; but there must not be any attempt at an afternoon syringing for the present, and no sprinkling practised likely to cause a moist temperature at night, as the weather is not yet to be depended on, and a sudden severe frost occurring whilst the house is moist is very much more likely to prove disastrous to the crop than if the atmosphere is dry. Ventilate at 50°, not allowing an advance above 65° without full ventilation, and close at 50°, or before if there is a prospect of frost at night. If water be necessary apply it sufficiently early in the day to allow of the surface becoming fairly dry before closing time.

CHERRY HOUSE.—Cherries are ripening rapidly; the fruits must be kept dry, but the surface of the borders should be rendered moist by damping with the syringe, air being admitted constantly, or condensation will seriously affect the fruit. Damping the border is calculated to mislead as regards its condition, therefore if necessary a thorough supply of water must be afforded without delay. Tie-in the shoots as they lengthen, and stop those not required for training in, at the fifth leaf. Black aphides may be kept in check by fumigation or by dipping the shoots or leaves in tobacco water. Ventilate freely on all favourable occasions, and when the external conditions are unfavourable recourse must be had to the heating apparatus to ensure a circulation of warm dry air. Netting will be necessary over the ventilators with sufficiently small mesh to exclude birds, which have a striking partiality for Cherries.

CUCUMBERS.—Clean growth is imperative in the cultivation of fruits. Aphides must be kept under by fumigation, filling the house with smoke in the evening, and repeating in the early morning, or it may be practised on two or three consecutive evenings. It is essential to have the foliage dry, but the floor well damped. Red spider is the worst enemy, and is sure to put in appearance. Remove the worst leaves, and keep the atmosphere charged with ammonia vapour by damping the floor in the evening with guano water, supplying the roots with the same about twice a week. The hot-water pipes may be thinly brushed over with sulphur mixed with skim milk to make it adhere. Let the roots be duly supplied with water, affording the same temperature as the house or bed. Plants in bearing all the winter will now be showing signs of exhaustion, and had better be removed, and young plants placed in without delay. All the old soil must be removed and the house thoroughly cleansed, using entirely fresh sweet material for the young plants. Assist young plants showing signs of weakness by removing the staminate flowers and the first fruits, stopping at every third or fourth joint, removing all weakly and superfluous growths. Shading will be necessary for an hour or two in the middle of the day when the sun is hot, especially houses facing south, but let it be done before the plants flag, as afterwards it will only prevent further injury, flagging being invariably injurious. Houses with roof lights facing east

and west will not require shading. Little or no fire heat will be required by day, shutting the valves at about 8 A.M., and opening them again at about 5 P.M. Syringe the plants moderately between 3 and 4 P.M., keeping a good moisture all day by damping the floors.

Pits and Frames.—Sow seed for raising plants to occupy pits and frames, a fair bottom heat being first secured by using the less decomposed material from Seakale, Vine borders, or exhausted hotbeds, which, with about a fourth of fresh material, will afford all the heat required. Close pits and frames as early in the afternoon as is safe, not allowing the temperature to exceed 90° to 95°, and employ good night coverings. Maintain a good bottom heat by duly renewing the linings. Prepare for planting out ridge Cucumbers under handlights, the plants being hardened off previously.

STRAWBERRIES IN POTS.—Noble is one of the finest Strawberries for growing in pots. It may not colour well to the "tip" when subjected to early forcing, but forced to ripen in late March or early April it is of fine size and colours well. Auguste Nicaise is unquestionably the best of second early forcing Strawberries, the fruit being large and bright in colour. We still give preference to La Grosse Sucrée as a first early, following with Noble and Auguste Nicaise. These two last may be had with a dozen to the pound or dish ordinarily, and are very attractive in appearance. La Grosse Sucrée does not usually require above twenty fruits to the pound dish, and it is very bright and clear in colour. Those three have a happy knack of not flowering their vigour away in a number of useless blossoms, but give six to eight or a dozen fruits in a very full crop per plant, but number always tells against size of individual fruits, and mars the quality to a very serious extent. To follow those we have President and Sir Joseph Paxton, which are large, getting up in "king" fruit to 1½ oz., Sir Joseph Paxton being a heavier and firmer, as well as better forcer, and sometimes reaches 2 ozs. Sir Charles Napier is a fine bright fruit, and crops splendidly, it, with Dr. Hogg, being the finest for late work. The latter is superb in flavour. It is necessary to grow Vicomtesse Hericart de Thury as an early, both forced and outdoors, in order to secure succession of quality. We also find Unser Fritz a fine late sort, affording 2 oz. fruits of a brilliant glossy red. For quality there is none to equal Dr. Hogg or British Queen. Some like a glossy dark fruit like Sir Harry and Waterloo, but they are soft, which, however, does not matter when they are grown for home consumption.

There must not be any lack of moisture at the roots of Strawberries as when the sun is powerful the fruits are apt to have the skins dried, and they do not swell freely afterwards. After the fruits commence swelling a brisk moist atmosphere is essential, supplying liquid manure liberally until the fruits change colour, when it must be discontinued, giving less water at the roots. Admit air freely whenever the weather is favourable, avoiding drying currents. Nothing is so advantageous as well thinning the fruits, especially the large varieties. See that late plants are free from aphides, and fumigate if there be the least trace of them. Do not keep fruiting plants a day longer in the houses than absolutely necessary, as it is hardly possible to force Strawberries without their being infested with red spider. Water the plants twice a day, and in bright weather three times, at least examine the plants for that purpose, and supply it if required. Liquid manure may be given at the afternoon watering.

THE FLOWER GARDEN.

Alternantheras, Coleus, and Iresine.—Now is a good time to put in a large batch of cuttings of these. They strike root in a few days, and by the time wanted for the beds, or say towards the middle of June, fine strong plants will be ready. The simplest method of preparing large or moderately large numbers of each or all of these useful plants is to either utilise a partially exhausted hotbed, or to form a shallow new one, in either frame or pit, sufficient material being thrown inside to raise the soil well up to the glass. A layer of about 4 inches of light fine sandy soil is sufficient, the cuttings being dibbled out 3 inches apart each way direct into this. Every short piece will strike, and no time need be wasted in trimming them. The lights, if the beds are not dangerously hot, to be kept on closely, and shade must be afforded whenever the sun shines on them. Later on, or when the cuttings are well rooted, a little air must be given during the hottest part of the day, the plants being eventually well hardened and finally transferred direct to the beds.

Late Struck Verbenas.—The latest rooted plants not unfrequently grow more strongly than do those that have been longer exposed to various injurious agencies. They succeed well treated much as advised in the case of Alternantheras, the soft young tops striking root in a week. Being stopped soon after they commence to grow afresh, the plants break strongly and move well.

Annuals that may yet be Sown.—French and African Marigolds and Tagetes germinate very quickly under glass, and may be sown thinly either in boxes or on beds of fine soil in frames, and from which they may be transplanted direct to the beds and borders. The miniature forms of French Marigold and Tagetes signata pumila are fairly good substitutes for Calceolarias, and should be raised in quantity if the latter are scarce or are liable to fail. Amaranthus, of which there are several with ornamental foliage, grow very rapidly, late raised plants being less liable to receive a severe check either before or after planting. Sow in pans in heat, prick out the seedlings singly into small pots, and keep growing in heat till large enough to harden off and plant out. They are somewhat tender, and ought not to be put out much before the middle of June. Ricinuses again are of rapid growth. Sow seed singly in 3-inch pots, and keep the pots in heat near the glass till the end of May, then harden off and plant out during the second week in

June. Sunflowers may, as a rule, be sown where they are to grow, but early strong plants may be had by sowing seed in gentle heat, potting off the seedlings singly, and planting out when large and hardy enough. Balsams may be similarly treated.

Hardening off Plants.—The time has now arrived for transferring the Zonal Pelargoniums well established in pots and boxes to a sheltered position where they can be temporarily protected if need be from late frosts. What bedding plants, more especially those in boxes, suffer from most is too much moisture, heavy cold rains doing much harm. They ought not, therefore, to be watered in a reckless manner, and never in the evening. When the pits and frames are cleared of the more hardy plants, they will be available for the forwardest seedling and cutting raised plants of various kinds, but the tender Coleus and Iresine should not be too quickly transferred from warm quarters to much colder positions or they may experience a check from which they will not properly recover. They are best kept in gentle heat till near the end of May.

THE BEE-KEEPER.

SEASONABLE NOTES.

THE fine weather experienced at the beginning of the month changed on the 4th with thunder showers, and it has been much cooler. The sky keeps cloudy, preventing the rapid evaporation of the moisture, so beneficial to the growth of all crops, although retarding the preparation of land for Turnips and other late crops. For the present bees are being deprived of the benefit of the blossom of the Sycamores so plentiful this year. But we do not count it all loss. Rather I would see this than a superabundant gathering of honey, which sometimes hinders the breeding to the loss of the bee-keeper, the hives being not in the best condition for gathering from the Clover as when they are kept steadily breeding till the proper time, the older bees being preserved, and the younger ones more numerous, and hives, as a rule, better conditioned in every respect for the gathering than when they are favoured with fine weather and an abundance of Sycamore honey during May.

SWARMING.

This has commenced, but the dull weather is retarding others. We prefer June to May swarms, but in some districts which are earlier May swarms are most desirable. Swarms not later than the 15th of June is the best time for the young queens to mate. The two last weeks of June and the two first of July are commonly the warmest, and appear the most natural time for the fertilisation of queens. It not unfrequently happens that queens hatched in May are not fertilised till June, although drones may be numerous. The bee-keeper will study his own interest best to keep no queens for profit but those fertilised in June or July, raised from strong stocks and by young bees.

REMOVING FILLED DIVISIONS BEFORE APPLYING SUPERS.

"Is it advisable to take off the top body box previous to putting on the box containing the supers on the Lanarkshire storifying hive? I am under the impression that by taking off the top box when filled with honey the bees would have less distance to travel before reaching the supers, returning the box after the harvest is over for the bees to winter on.—R. A. C."

The above query covers a wide and important field in bee-keeping. The system has been practised here for a long time, both by removing the upper and under division, as circumstances demanded, the main object being to crowd the bees into the supers, and prevent or delay swarming; it cannot be prevented at all times nor in every case, but we use the means.

There are times and seasons when it is inadvisable, but in others very advisable to so manipulate. In 1872 our bees missed the Gooseberries, and the spring throughout was untoward, consequently they were in a backward state. The Sycamores had abundance of bloom, and the weather was favourable, the bees soon filled every available space with honey, completely stopping breeding. Removal of the upper divisions of the storifying hives and the side combs of the one-divisioned frame hives would have been done, but the weather changed to cold and wet, which delayed the operation, and well it was so, for the season turned out a failure, but had the weather kept fine the surplus honey would have been removed and the bees encouraged to breed to be in strength for the Clover.

At one time "raises" were extensively used for maintaining strong stocks, affording a drying ventilation that the ventilating floor has superseded them. Just before the honey flow they were placed under the non-swarming hives for a day or two, sometimes longer, depending altogether on the weather. The extra room

tended to delay swarming, and when removed at the commencement of the honey flow immediately crowded the bees into the supers. The combs built in the "raise" were employed for guides or "tooks," as they were termed, for the honey boxes, the splitting of the top bar to receive the combs, and the heated iron along with wax to fasten them, were plaus or contrivances invented to complete the system, and the way we produced ornamental designs before foundation was heard of. Height is no obstacle for bees to reach supers; it is in accordance with the nature of the bee to ascend, and in opposition to the clumsy method of lateral extension.

Surplus honey serves no good purpose in a hive during summer, and if it is sealed, remove it, but in doing so care must be exercised to prevent brood drawing. A little food will serve the purpose. Honey is of more value than sugar; the latter may be profitably employed, instead of returning the division of honey. In all cases where it is inadvisable to remove the upper division, the side combs, if sealed, should either be removed and frames of foundation substituted, or the seals broken, so as to induce the bees to enter the supers, which they do reluctantly if they have to pass over sealed combs.

When bees are located in a full sized hive, all the small quantities and different varieties of honey, sometimes (the reverse of fine), is stored above, leaving ample breeding space below. Such divisions will be best returned to the hive, and the bees will neither be disheartened nor lessened in numbers by the act, and supers will be filled expeditiously, providing the foregoing precautions are taken, as well as to preserve the normal form of the crown of the hive. The foregoing will perhaps impress bee-keepers with the importance of the three-divisioned-bodied Lanarkshire hive, and to answer several other queries which a modern writer has prompted by advising bee-keepers "not on any account to purchase a hive that has not the Association standard size frames, as another size will only be worth the price of so much firewood!" But apparently the author is not very clear upon the question, for after descanting upon the inadvisability of using deep frames for storifying and setting forth the advantages of shallow frames, he says:—"We can see many advantages in thus using shallow frames for extracting purposes. No wire need be used, the combs are always clean, the difficulty of uncapping is reduced to a minimum, they very rarely break out of the frame when extracting, and the honey is of as fine a colour as that extracted from sections. To Mr. Carr of Cheshire we are indebted for the promulgation of this system."

Not so fast Mr. Webster, the system was promulgated a long time before Mr. Carr's day, but you are very near correct in what goes before the last sentence, only it is a pity your experience did not extend further to have enabled you to state the properties the shallow frames possess for bee-keeping generally. Perhaps the next edition of your useful work will do so, as well as to remove other errors, and tell us a hive not having standard frames need not "be burned." The book has been sent me with a number of queries, but no name attached, so I suppose they are readers of this Journal, which I may answer again, and supplement the answers to "R. A. C." as the season advances.

COVERING HIVES.

"Will 'A Lanarkshire Bee-keeper' give his advice as to covering hives, as many more are interested than myself? I use the hives without any external covering further than filling the top box with hay, then covering with a sheet of iron weighted with bricks. I shade with mats during the summer. I would like to hear of the advantages, as I thought sacking would hold water instead of allowing it to escape. But if covering is better I must adopt it. I must own that the paint blisters and peels off uncovered hives.—R. C."

It is a good plan before tearing down a structure either to have a makeshift or a new permanent building ready for the reception of the inmates whatever they may be. Our modern reformers in bee-keeping did not adhere to this policy, being ignorant both of the habits and nature of bees, as well as of the methods of managing them and their domiciles. They set to work demolishing all the appurtenances connected with bee-keeping, and some of them went so far as to express their dissatisfaction with the build and form of the bees themselves, and made an effort to alter the structure, but the bee still reigns supreme, and happily the bee-keepers north of the Tweed maintained their position. Double cased hives are expensive, clumsy failures; single cased hives are light and handy, suitable for every phase of bee-keeping and every clime, but they must be protected. Both single and double cased hives unprotected or unventilated during winter condense the moisture upon the inner walls, rotting the combs, destroying the honey, and causing death and disease to the bees. The damp oozes through the wood and lifts the paint and rots the hive. Double cased hives always do this, but well protected single cased ones will carry

the perspiration of the bees through the top of the hive and its entrance, as well as what falls upon the sides will pass through the walls, hence the reason I advocate thin walled hives. Well protected single walled hives during summer prevent the heat of the sun melting the combs as well as preventing the bees crowding out and loitering instead of working. During the spring the hive is kept at a uniform degree of temperature, thus breeding is carried on uninterruptedly and in a regular manner without the slightest chance of brood drawing or brood chilling taking place.

Even with all our care during extremely warm weather bees are apt to get too hot. I shade as well as cover my hives with damped grass or cloths. About twenty years ago I introduced a shade for bee hives—a light simple contrivance, as a framework crossed the top of the hive, and a sheet of calico thrown over it held in its place by pockets with stones. This simple device, like most others, was appropriated. Mr. Abbott might have seen it at Glasgow; though shortly after he wrote that "No one had attempted a shade for hives"

I almost forgot the most important part. Well covered hives of bees will build more comb during the night than naked ones, consequently more honey is gathered next day, and the comb is always whiter. I trust these few hints will enable bee-keepers to see the advantages gained, and place themselves in a position independent of the advice of any association, and enjoy the "privilege of independence" at least with bees.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Thomas S. Ware, Hale Farm Nurseries, Tottenham, London.—*Catalogue of Dahlias and other Plants.*

James Carter & Co., 237, High Holborn, London.—*Catalogue of Seeds and Plants.*

James Veitch & Sons, 544, King's Road, Chelsea.—*Catalogue of New Plants for 1890 (illustrated).*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Summer-pinchng Fruit Trees (F. J.).—Thin the shoots to prevent overcrowding, and allow the growths to extend till July, then pinch them as required. If the trees require much summer pruning to keep them within bounds it is certain they will not be profitable, and should have their vigour arrested for the formation of fruit buds. This can only be effected by judicious root-pruning or lifting, and affording firmer soil. Remove the ill-placed shoots at once. The wood is firm or soft, fruitful or unfruitful, as it is exposed to the sun and air.

Chalk for New Garden (Imprimatur).—From your description of the soil a dressing of chalk would probably do good; but unless it is in very small particles it might be better to trench the land first and have the chalk placed on it in small heaps before winter, so that it would be disintegrated by the action of wet and frost for spreading and forking into the ground in spring. From 60 to 80 cubic yards per acre are applied to heavy chalkless soils. The best chalk for your purpose is usually taken from a good depth in pits, not from near the surface.

Mildew on Roses (F. J.).—Syringing with a solution of soft soap 2 ozs. to the gallon, and a handful of sulphur added to three gallons, is an effectual remedy, applied so as to reach every part of the plant, and is good against other or insect pests. We presume it is the white mildew to which you allude. It may also be destroyed by Harris's sulphide of potassium. Indeed sulphur is the most reliable frustrator of its ravages. Sulphur water may be prepared as follows:—Boil 1½ lb. flowers of sulphur and 1½ lb. quicklime in a gallon of water, preferably in an earthen pot, for a quarter of an hour, stirring constantly whilst boiling. Allow it to settle, and when cool pour off the clear liquid and place in a stone bottle, keeping closely corked for use. Use a quarter of a pint of the preparation to a three-gallon can of water, applying it with a syringe.

Vine Leaves Diseased (G. B.).—The leaves are attacked by a fungus, which at first appears as spots or roundish pustules, which soon extend, and becomes confluent adjacent to the midribs, isolated or less confluent on the thinner tissue. The spots are at first greenish yellow, soon passing to pinkish grey, and finally become black or dark brown, with a reddish brown border or next the unassailed portion of the leaf. The fungus is not very destructive except under special conditions, such as a close vitiated atmosphere, alternating with checks consequent on injudicious ventilation, and is most prevalent in structures where the roots of the Vines are in rich, wet, cold, outside borders. There is no preventive equal to a genial freely ventilated atmosphere, so as to insure sturdy growth, thoroughly stout firm-textured foliage, therefore better able to resist the intrusion of the fungoid germs through the epidermis. The growth when attacked is arrested or, in bad cases, destroyed; but this rarely occurs when the foliage becomes sufficiently hardened, although one form of the parasite not infrequently attacks lateral growth in autumn, completely crippling the foliage and preventing its enlargement. There is no remedy. Perhaps a solution of sulphate of iron would prove beneficial, a quarter of an ounce to a gallon of water being sufficiently powerful, distributed over the border at the rate of one gallon per square yard. Burn the prunings summer as well as winter.

Peach Leaves Injured (G. H.).—The leaves have been scorched by fumigation, and the parts affected with blisters will fall, giving the foliage a scalloped appearance as if gnawed and eaten by insects. The leaves, in some cases, fall entirely, but not usually, as the parts near the midribs are generally firmer in texture, and not so liable to be covered with moisture as the softer parts. It is always a risky proceeding fumigating Peach houses in the early stages of the trees' growth, as the leaves are not only liable to suffer, but the fruit is in danger of being damaged, therefore it should always be practised very carefully, and with considerable judgment. It is necessary to have the foliage dry, and deliver the smoke as cool as possible. The more healthy and succulent the foliage is, the more susceptible to injury are the leaves and incipient fruits, therefore we make a practice of fumigating on two or three consecutive evenings moderately, to avoid as far as practicable making a mistake. Whether the trees have suffered through want of water or not, that is not the cause of the foliage being in its present condition. Eighty gallons is not much to give to nine trees in two months, but as they are not large trees, it may, or may not, have been adequate to their requirements. The trees must be kept well supplied with moisture at the roots, never allowing the soil to become so dry as to affect the foliage. When the soil is becoming dry it must be watered so as to moisten it as deeply and as far as the roots extend. Two 3-gallon watering pots full of water, allowing for loss, are equal to about an inch of rainfall persquare yard, which is a minimum quantity to apply to fruit borders at one time to insure their being moistened down to the drainage.

Peaches and Nectarines Falling (M.).—The cause is imperfectly assimilated matter, usually termed imperfect wood. Food in the previous year has not been stored in the adjacent wood to sustain the fruit in the early stages of its development, and the trees make an effort to rectify the deficiency by the production of growth, in order to a large elaborative power and resultant assimilation of the food supplies. This is often frustrated by the cultivator by too early and too free and full disbudbing, and the maintenance of a close moist atmosphere, which is favourable to growth rather than elaboration and assimilation; the fruit falling in the incipient state from a deficiency of stored food. The wood is very unripe, weak, and long jointed. Therefore recourse must be had to root-pruning, or preferably to lifting, if it can be safely done. The roots should be raised and laid in firmer soil, so as to insure stouter, shorter jointed, thoroughly solidified wood. The soil not being calcareous may have a sixth of old mortar rubbish added to it, or if it be light add a similar proportion of clay marl, and make the soil as firm as possible about the roots. This should be done after the wood becomes firm and before the leaves fall, the close of September or early in October being a suitable time in your case. With care we see no reason why the trees should not be successfully operated upon in the manner indicated, which is the only means calculated to effect a beneficial change. Keeping the house close and moist for the bedding plants would aggravate the evil, as with a drier atmosphere and allowing the disbudbing to stand over longer than usual, the sap would have been better elaborated and the fruits supplied with assimilated matter, which would to a certainty have prevented their falling to so serious an extent, if at all.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (F. A.).—The specimen sent had no flower, but it is no doubt *Amelanchier Botryapium*. (T. K.).—Much crushed and carelessly packed, perhaps it is *Tiarella cordifolia*. (W. C.).—The numbers were not attached to the specimens, so we can only distinguish the large "Cactus" flowers as *Phyllocactus grandiflorus*, and the speckled flower as *Fritillaria Meleagris*. (F. D.).—1, *Pyrus Aucuparia*; 2, Insufficient. 3, *Prunus Padus*; 4, *Alyssum saxatile*; 5, *Solanum Capsicastrum*.

COVENT GARDEN MARKET.—MAY 14TH.

A GENERAL improvement in business, with supplies of all classes of goods heavy, and prices easier all round.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, ½ sieve	2	0	to	6	Melons, each,	2	0	to	4
" Nova Scotia and					Oranges, per 100	4	0		9
" Canada, per barrel	18	0	25	0	Peaches, dozen	6	0	3	0
" Tasmanian, p. case	15	0	2	0	Red Currants, per ½ sieve	0	0		0
Grapes, per lb.	2	6	4	0	St. Michael Pines, each..	2	0		6
Lemons, case	10	0	15	0	Strawberries, per lb. ..	1	6		6

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, dozen	0	0	to	0	Mushrooms, punnet ..	1	6	to	2
Asparagus, bundle	2	0		4	Mustard & Cress, punnet	0	2		0
Beans, Kidney, per lb. ..	1	6		0	Onions, bushel	3	0		4
Beet, Iced, dozen	1	0	2	9	Parsley, dozen bunches	2	0		3
Brussels Sprouts, ½ sieve	0	0		0	Parsnips, dozen	1	0		0
Cabbage, dozen	1	6		0	Potatoes, per cwt.	3	0		4
Carrots, bunch	0	4		0	" New, per lb.	0	2		0
Cauliflowers, dozen	2	0		4	Rhubarb, bundle	0	2		0
Celery, bundle	1	0	1	3	Salsafy, bundle	1	0		1
Coleworts, doz. bunches	2	0		4	Scorzenera, bundle	1	6		0
Cucumbers, doz.	2	0	3	6	Seakale, per bkt.	1	0		1
Endive, dozen	1	0		0	Shallots, per lb.	0	3		0
Herbs, bunch	0	2		0	Spinach, bushel	1	0		2
Leeks, bunch	0	2		0	Tomatoes, per lb.	1	0		1
Lettuce, dozen	0	9	1	3	Turnips, bunch	0	4		0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.
Anemone, dozen bunches	1	0	to	4	Mignonette, Fr., large bnch	1	6	to	2
Arum Lilies, 12 blooms ..	2	0		4	Narcissus, 12 bunches ..	2	0		6
Azalea, dozen sprays ..	0	6	1	0	Pansies, dozen bunches ..	1	0		2
Blue Bells, dozen bunches	1	0		2	Pelargoniums, 12 trusses	0	9		1
Bouvardias, bunch	0	6	1	0	" scarlet, 12 bnchs	4	0		6
Carnations, 12 blooms ..	1	0		2	Primroses, dozen bunches	0	4		0
Cowslips, dozen bunches	0	6	1	0	Prinula (double) 12 sprays	1	0		1
Daffodils, dozen bunches	2	0		6	" (single) 12 sprays	0	0		0
Deutzia, per bunch	0	4	0	6	Rauunculus, doz. bunches	2	0		4
Eucharis, dozen	4	0		6	Roses (indoor), dozen ..	1	6		3
Forget-me-not, doz. bnch.	2	0		4	" Red, 12 blooms ..	2	0		4
Gardenias, 12 blooms ..	2	0		4	" Tea, white, dozen..	1	0		3
Lapageria, 12 blooms ..	2	0		4	" Yellow	2	0		4
Lilac (Eng.), doz. bunches	4	0	3	0	Spiraea, dozen bunches ..	6	0		9
Lilium, various, 12 blms.	1	0	3	0	Tuberose, 12 blooms ..	1	0		1
" longiflorum, 12 blms.	4	0	6	0	Tulips (Eng.), doz. bnch.	2	0		4
Lily of the Valley, dozen					Violets, dozen bunches ..	1	0		2
" sprays	0	6	1	0	" French, per bunch	1	0		2
Marguerites, 12 bunches	2	0		6	" Parme, per bunch	3	6		5
Maidenhair Fern, dozen					Wallflowers, doz. bunches	2	0		4
" bunches	4	0	9	0	White Lilac, French, per				
Mignonette, 12 bunches..	2	0	4	0	" bunch	4	0	5	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldi, dozen ..	6	0	to	12	Geraniums, Ivy, per doz.	5	0	to	9
Arum Lilies, per dozen ..	8	0		12	" Scarlet, per doz. ..	4	0		9
Arbor Vitae (golden) doz.	6	0		4	Hyacinths, 12 pcts	0	0		0
Azalea, various, per dozen	18	0	30	0	Lily of the Valley, 12 pots	12	0		18
Calceolaria, per doz. ..	9	0	12	0	Lobelia, per doz.	5	0		8
Christmas Rose	0	0		0	Marguerite Daisy, dozen	6	0		12
Cineraria, per dozen ..	5	0		9	Mignonette, per dozen ..	5	0		8
Cyclamen, per dozen ..	0	0		0	Musk, per dozen	4	0		6
Deutzia, 12 pots	6	0		9	Myrtles, dozen	6	0		12
Dracæna terminalis, doz.	24	0	42	0	Palms, in var., each ..	2	6		1
" viridis, dozen ..	12	0	24	0	Pelargoniums, per doz. ..	9	0		18
Epiphyllum, per dozen ..	0	0		0	Primula (single), per doz.	0	0		0
Erica, Cavendishi, per pt.	2	0		3	Rhodanthe, per dozen ..	6	0		9
" various, dozen ..	12	0	18	0	Roses (Fair), per dozen	8	0		10
" ventricosa, per doz.	12	0	18	0	" 12 pots	12	0		24
Euonymus, var., dozen ..	6	0	18	0	Saxifraga pyramidalis,				
Evergreens, in var., do. cn	6	0	24	0	" per dozen	18	0	24	0
Ferns, in variety, dozen..	4	0	18	0	Spiraea, 12 pots	8	0		12
Ficus elastica, each ..	1	6	7	0	Stocks, per doz.	4	0		6
Foliage plants, var., each	2	0	19	0	Tropæolums, various, per				
Fuchsia, per doz.	8	0	12	0	" dozen	3	0		6
Geuista, per dozen	8	0	12	0	Tulips, 12 pots	0	0		0

Bedding Plants in variety, in boxes and pots.



GREEN MAIZE.

A FODDER crop that yields 32 tons per acre of wholesome, succulent, nourishing food, which cows, store cattle, pigs, sheep, and in fact all kinds of stock consume with avidity, is worthy of a place on every farm where it will answer, and there are assuredly very few farms in any part of this country where some of it might not be grown. Let not the bugbear of climatic influences arrest your intention to give Maize a fair trial. Remember, it is the green plant and not the ripe corn we require, and two or three months of ordinary summer weather is a sufficient period of time for seed germination and plant growth.

Some of our best farmers have failed with this crop—why we cannot say, unless it is that they have not given due personal

attention to the few and simple cultural conditions necessary to success. Now as to soil. It has been laid down positively that Maize requires light land, yet it answers perfectly well in any soil under thorough cultivation. The term is comprehensive, and includes drainage, mechanical division, cleanliness, and fertility—just that rich, clean, dry, porous soil that is part and parcel of all good husbandry. No doubt Maize answers best of all on sewage farms, where the bulk of crop far exceeds our average, and probably approaches more nearly to 62 tons per acre, which Mr. Genay claims to have grown in France. But we have to deal with its culture under the ordinary conditions of farming, and can only deplore the suicidal policy which causes or suffers the waste of so much town sewage, which if used in its crude state upon the land would give us thousands—aye, millions of tons, not only of Maize, but Rye Grass and other quick-growing fodder crops, so that we might raise and fatten three or four times our present head of live stock at so low a cost as would practically drive foreign cattle out of the market, and tend more than anything else to bring back prosperity to the British farmer. There is an important fact taught by science in relation to the use of green fodder for stock which may be mentioned here with advantage. It is this: In point of actual nourishment such crops are at their best when in full flower, just before seed development begins; we may go further, and include all kinds of pulse and corn in this category. The matter is one of fact which has long been proved to demonstration, and it is absolutely certain that under present prices and conditions it is entirely to the farmer's advantage to suffer very little corn to remain upon the land after it has passed the flowering stage, and to convert all that he cannot use then into silage. All the risk and expense of harvest is thus avoided; such a degree of certainty is imparted to our work as it never had before, and we are rendered practically independent of adverse harvest weather, and are able to hail with gladness dripping weather in summer and autumn, which once we regarded with gloom and a feeling akin to despair.

It is self-evident that under the light of science the use of green fodder is capable of very great extension, and we have only to rear plenty of the very best home-bred stock to consume it, in order to take full advantage of this teaching. Practice combines with science in this, as in so many other things, to teach us if only we can grasp and apply its lessons. Take, for example, the farm horses, with their allowance in winter per week of two bushels of corn and hay, and roots *ad libitum*. How soon they improve in condition when turned out to grass again, and their dietary is entirely one of green food. Cattle, too, ripen for the butcher in a summer's sun upon marsh or other rich pasture at the rate of a bullock and a half per acre.

We have been led into a digression for which we may fairly claim full justification, and must now add briefly that the chief cultural points with Maize are good soil, to sow the seed the first week in June, and to allow for fully 25 per cent. of bad seed, the quantity of seed to be determined by the distance apart of the rows, which preferably should be 2 feet apart to admit of horse hoeing. Thick sowing has its advocates, as the large foliage of the Maize excludes light sufficiently from the soil to keep down weeds. The plan is, we think, only advisable when sheep folding is intended, and then drills 9 inches apart are advisable, for which some 3 bushels of seed per acre is required. The plant is slow to appear, but once up it grows quickly, only beware of the rooks. By some occult means every rook of the district is aware of the Maize sowing, and is speedily at hand to pick up every grain of it row by row, and they will do it too, unless the field is watched from dawn till twilight. There are no laggards among them at this work, and many a crop has been spoilt by them at odd times just after daybreak, or very soon after 3 A.M. The crop is ready for use by the middle of August, so that it may be used regularly for a month or two. The first sharp frost turns the outer leaves brown, and though stock will continue eating it, it is obvious a

clearance should be made of the entire crop before risk of such damage arises.

WORK ON THE HOME FARM.

With the increase of our head of stock more and more attention is given to the provision of shelter for them. To ask the landlord for building extensions under the present low rental is in vain, and the tenant or home farmer who has all old buildings in repair may be congratulated. Much may be done by a little contrivance with old buildings, and very little space is required for a dozen or two of young calves. The chief things are warmth, shelter, good wholesome food, and thorough cleanliness. Much time is consumed just now in this care for stock, but it is care well bestowed, for they are bound to prove profitable, and to purchase store cattle now is simply ruinous, for it is impossible to see how anything like a profit can be realised upon present prices.

Extra caution has been required in lamb feeding with such an abundance of green food, and the allowance of lamb food has been much curtailed. There is no doubt that considerable numbers of lambs are lost from a plethoric habit induced by wastefully high feeding, resulting in apoplexy, and there especially lies the risk this season. They die, fine strong lambs—often the best—and "scour" is said to be the cause, when the plain truth is they are killed with kindness. A zealous shepherd very naturally likes to have the best lot of lambs in his district, but his zeal must be tempered with judgment by the master, who must see thoroughly how matters are going before harm is done. It is the master really who should control the dietary both by direct orders and by lock and key.

Castration of colts should have been done ere now. We always like to get this over as soon as mild weather sets in, though we know there is a prejudice for waiting till the end of the month. A healthy yearling is best treated at once, and to put off this necessary operation till the second year involves much unnecessary risk and trouble. Newly broken colts are kept steadily at work every day, due care being taken not to overtax their strength, then with careful feeding and good general management they are "growing into money" daily for the next year or two. Really well bred well managed colts are an invaluable resource to a farmer who can afford to wait for a good chance to sell, and in horses, like all other live stock, breeding tells, and advancing prices afford full encouragement to turn all good mares upon a farm to full account. Only every valuable animal should be insured, and we can then breed with confidence and without the attendant anxiety of risk from loss.

OUR LETTER BOX.

Butter not Keeping (J. J. S.).—You may prevent your butter from becoming rancid by using a slight admixture of the new anti-septic "Glacialine," which you ought to be able to procure from a local chemist. The manufacturers are the Antitropic Company, Renfield Street, Glasgow. This chemical salt is quite tasteless, odourless, and harmless, and it preserves butter quite sweet much longer than does common salt. It removes the bitter taste so common in winter butter; it prevents milk from becoming sour for several days, even in very hot weather, and is altogether an excellent preservative as well as a neutraliser of taints and odours.

CARTER'S ELEPHANT SWEDE.—Messrs. James Carter & Co. have received the annual report of the Minister of Agriculture from the Government Experimental Farm in connection with the Canadian Department of Agriculture, and request the publication of the following official statement:—"This fine Swede offered by James Carter and Co. of London, England, in the spring of 1888, has yielded a heavier crop than any other variety tested, exceeding the best of the other Swedes by nearly 3 tons per acre."

METEOROLOGICAL OBSERVATIONS.

* CAMDEN SQUARE, LONDON.

Lat. 51° 32' " N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1890.											
April and May.											
Sunday	4	29.705	53.0	49.2	N.E.	50.5	65.7	41.5	93.4	35.5	0.680
Monday	5	29.552	48.8	47.6	E.	50.2	61.3	48.2	102.9	46.0	0.043
Tuesday	6	29.695	54.6	50.7	E.	50.0	63.9	42.3	102.7	35.2	0.010
Wednesday ..	7	29.633	55.6	51.3	E.	49.9	60.7	44.3	80.2	37.0	0.034
Thursday	8	29.634	49.8	49.3	N.	50.0	61.6	44.9	74.4	36.5	0.020
Friday	9	29.576	49.1	47.1	N.E.	50.0	53.5	46.6	70.6	46.8	0.408
Saturday	10	29.478	52.6	48.9	S.E.	49.4	62.2	45.0	114.6	48.0	0.213
		29.610	52.1	49.2		50.0	61.3	45.1	91.3	40.4	0.808

REMARKS.

- 4th.—Thick and hazy all day, with frequent spots of rain; very close and oppressive at midday.
 - 5th.—Overcast morning, with frequent showers; fine and generally bright in afternoon.
 - 6th.—Generally cloudy in morning, and shower at 11 A.M.; fine afternoon, with a good deal of sun.
 - 7th.—Cloudy morning; gloomy, with spots of rain at midday and at 4.30 P.M.; fair evening.
 - 8th.—Cloudy, with two or three showers.
 - 9th.—Overcast, with occasional drizzle in morning; heavy rain from 1 to 6 P.M., and showery later.
 - 10th.—Cloudy early; fair day, with some sunshine.
- Showery, with temperature slightly above the average.—G. J. SYMONS.



THE TEMPLE SHOW.

FOR years past flower shows have been held in the Temple Gardens on the Thames Embankment, but they have been Chrysanthemum shows. The Exhibition to which we desire to direct attention is that of the Royal Horticultural Society, which opens in the historic gardens of the Inner Temple on Wednesday next. It was a happy thought which led to the acquisition of the commanding site, kindly granted by the Temple authorities, for the purpose in question, and we believe that nothing but good can result from placing the choicest and most beautiful flowers where they can be conveniently inspected by the residents in and visitors to our great metropolis. This year it is hoped they will crowd the tents and gardens, and the expected presence of the Prince of Wales will be a great attractive force, for when Royalty leads the way in anything there is no lack of public patronage. The Exhibition will, we have no doubt, be worthy of the occasion and of the Royal Horticultural Society. It will not be formal and competitive in the ordinary sense of the term, but will on that account be the more diversified, for it permits of plants being represented of the rarest kinds, though they could not be included in stereotyped classes of six or twelve large formal specimens. Beauty and high culture can be displayed in small as well as in large plants, while the system of grouping all that possess value and interest gives to the fullest extent the great charm of variety. Viewed in this respect, we may fairly expect the display will stand alone as the great floral event of the season. When wealthy patrons of horticulture and the chief nurserymen combine in bringing the choicest and best from their treasure houses there can only be one result—namely, a brilliant assemblage of what may be described as the gems of the floral world.

On previous occasions the Temple Shows of the Royal Horticultural Society have been remarkable for the wealth of Orchids, and it is questionable if such a display of these was ever provided under canvas as at the Show of last year, and there is no reason to expect any falling off on the coming occasion. Hardy and greenhouse decorative plants have also been a prominent feature of the Shows, and both in numbers, variety, quality, and adaptability to embellishment it would be difficult to imagine a more complete assortment than has been presented, and doubtless will be again. Similar remarks apply to cut flowers, and the attractive power of these last year was manifest by the crowds of persons who passed through the tent in a slowly moving mass to admire them and take down names as best they could, with the object of growing similar flowers in their own gardens.

The Exhibition next week may well be kept in mind by persons who may contemplate a visit to London, for it will constitute a floral treat, unique in magnitude and variety. Moreover, the position is so central as to be easy of access from almost everywhere. It is our strong hope that the weather will be favourable for visitors, as then a success commensurate with the efforts to win it will be assured.

The Temple station on the Metropolitan Railway is quite near to the Show, and it is also easily reached from Ludgate Hill and Fleet Street. The price of admission on Wednesday is 2s. 6d. from 1 to 8 p.m., and on Thursday the Show will open at 11 o'clock, price 1s.

The schedule, as was stated last week, announces that silver

cups and medals will be awarded according to merit for exhibits in the following classes:—Flowering plants: Orchids, Anthuriums, Azaleas (Indian and Mollis), Begonias, Calceolarias, Roses, Rhododendrons, Gloxinias, Alpines, Clematises, Pelargoniums, &c. Foliage plants: Palms, Ferns, new plants, Dracenas, Caladiums. Cut flowers: Hardy herbaceous plants, Rhododendrons, Tulips, Lilies, Irises, Roses. Miscellaneous groups (flower and foliage), market plants, bouquets, table decorations, &c., fruit, vegetables. The Society will issue for this Show a catalogue comprising a history of the Royal Horticultural Society, including particulars of their meetings and Shows both at the Drill Hall, James Street, S.W., and at Chiswick. It will contain the programme of the music to be performed each day by the band of Her Majesty's Royal Horse Guards (Blues), and a list of exhibitors and of their chief exhibits; but we are requested to state that no addresses can possibly be inserted unless they are received by Mr. Barron, R.H.S. Gardens, Chiswick, or at the Society's offices, 117, Victoria Street, on Saturday, May 24th.

GRAPES FROM THE CAPE.

SIR CHARLES DILKE in his interesting book, "Problems of Greater Britain," makes some remarks on the prospect of the Cape affording our markets a supply of Grapes and other fruits; but I fear he is somewhat mistaken in some of his statements. For instance, he says, at page 489, vol. 1, that "Cape Grapes already reach England in excellent condition in the early spring when good Grapes are dear." It would be interesting to know how many pounds of Cape Grapes find their way to England "in excellent condition," and if any salesman receives them it would also be interesting to hear from him how they arrive and how they sell.

I am inclined to think that very few Cape Grapes come in a fresh condition to England. In the form of raisins no doubt many come, and splendid raisins they make at the Cape; but a sea voyage of nearly twenty days is rather too long to allow of fresh Grapes arriving from the Cape, as Sir Charles Dilke says is the case. Even if they could be placed in Covent Garden in "excellent condition," it is doubtful if they would pay the senders, as nowadays prices are very different from what they used to be, and the Cape Grapes, though many of them are splendid for outdoor Grapes, cannot compare with our fine hothouse fruit put fresh into the market, and not subjected to 6000 miles of a sea voyage and three weeks knocking about.

Remarking further on general fruits Sir C. Dilke says, "There is a future for the fruit trade from South Africa to London, as the South African seasons are the opposite of those of the Mediterranean countries which send us our largest import." It may be questioned if there is much of a future for the fruit trade between South Africa and London, and certainly it seems that Sir C. Dilke takes too favourable a view of the prospects of such a trade. Such fruits as Apricots, Peaches, &c., cannot be produced in a fresh condition after so long a voyage, and to attempt to send them in quantity would only result in financial loss, as at present it is certain that the attempt on a small scale is rewarded only by disappointment.

For Grapes and other fresh perishable food we must look to our home and less distant foreign supplies, and must rest content to eat our share of Cape Grapes in the form of raisins or drink it as wine. The latter form of Cape Grapes would be much more popular were the best qualities sent over sold as Cape wines, and not given European names and sold as Continental produce. When only the inferior kinds of Cape wines are sold under their Cape names, and as the produce of the Cape, an injustice is done to the reputation of that land as a wine-producing country, and this should be remedied.—J. T.

[We have not had the privilege of seeing any good Cape Grapes

nor Grapes from anywhere, that by :ny means equal the best produce of British cultivators.]

DIMINUTIVE PLANTS.

SAXIFRAGAS.—Foremost amongst diminutive plants at this season of the year are the Saxifragas of the crustaceous section, particularly the forms of *S. Burseriana*, for already these are bristling with buds that will soon expand into their charming flowers. Seldom, too, do we get the remarkable contrast of colour which this plant affords, the buds previous to expansion being a distinct brick red, while the expanded blossoms are pure white, these also being borne on scarlet stems; the tuft of leaves are of a silvery hue and spiny. All things considered it is one of the best of this section, a charming plant when in flower, of extremely simple culture, and easily increased either by division or by cuttings. Warm sunny spots on the rockery, in deep sardy loam and plenty of sharp grit, to which may be added a little manure with advantage; it is an excellent plant for pot culture, and when in flower good potfuls are very attractive. Give abundant drainage and pot firmly.

Another choice member of this genus is *S. Rocheliana*, also with white flowers and early. This should always be found in good collections. Then if we take a glance at the *oppositifolia* group we find these forming dense carpets close upon the group, and which are covered with their masses of flowers during February and March. All the members of this section prefer a moister position than is generally given them. This and full exposure to the sun suit them well.

SIBTHORPIA EUROPEA VARIEGATA.—Though we cannot count this with the generality of hardy plants, the little protection it needs should place it within the reach of many. It chiefly dislikes damp and frost in winter and sun in summer—these three are quite opposed to its welfare; while on the other hand it seems to revel in a temperature of 45° or 50° with plenty of moisture, provided ventilation is perfect, and it is exposed to hot sun. During summer it may be grown in a partially shaded frame or in the cool fernery, the latter suiting it admirably. Given a suitable position it is surprising how quickly it will grow and cover the surface. It is seen to the best advantage probably when suspended from the rafters of a cool greenhouse in a pot or pan, and having become established draping the sides with its silvery leaves. The soil in which this little trailing beauty seems to delight in is peat, leaf soil, and yellow loam in equal parts, and to this may be added some broken brick rubbish and sharp grit. Some care is needed in potting this interesting plant, as the majority of its roots are produced from the creeping stems on the surface, and it will be found the best plan to fill the pot or pan (the latter always preferred if the plants are not intended for commercial purposes) first with the soil, making it somewhat firm, then scatter the stems over the surface of the soil, and distributing them thinly use tiny wooden pegs to secure them in position. Should there be a majority of roots near the centre of the plant these, of course, may be dealt with in the usual way of potting; but by distributing the stems as I have described a compact plant may soon be secured. When the pegging is complete take a handful of clean dry silver sand and scatter it over the plant without quite burying it, after which give a thorough watering with a fine-rose can, sufficient to wash the sand in all the remaining crevices and about the stems. This and occasional light sprinklings will quickly cause fresh roots to be emitted, and if ordinary care is bestowed upon it good plants may easily be obtained.

NERTERA DEPRESSA.—To anyone in search of interesting hardy plants this plant cannot be too strongly recommended. At one time I grew it by hundreds, and it was always admired. For six months of the year it presents nothing more than a singularly dense dwarf green carpet of its tiny leaves, while for the other six or nearly that period if well grown it is full of interest. Early in the spring it produces its inconspicuous greenish flowers in the axils of the leaves. In due time these tiny flowers, which even on small plants are produced in great numbers, arrive at fruiting stage, and these having attained maturity are of a bright orange red. It is at this time and for three or four months that the plant is so full of interest, and few plants can possibly be more attractive than this when thickly studded with its brilliantly coloured berries or fruit. It grows freely in sandy peat and loam in equal parts, and given the protection of a cold frame in winter is all that it requires. Propagation may be effected by division or by seeds, the former preferred. To produce the best results annual division is recommended, in consequence of its singularly dense habit of growth, and thereby liable to become weak in the centre when left in large masses. I wonder some nurseryman has not employed this effectively in fringing a group for effect at some of the summer

shows, but apart from an occasional potful in a miscellaneous collection it is rarely seen. Many years ago it was employed by Mr. Legg of Clapham Park in the carpet bedding arrangements, producing quite a unique effect. For this purpose it was grown in pots which were sunk in the carpet design, the charming tufts of bright coloured berries creating quite a new feature; the berries, too, under full exposure were more brilliant than is usually seen. This is the only instance I remember where this pleasing little plant has been so largely used for purposes of bedding.

OMPHALODES VERNA.—One of the most delightful plants for a cool shady spot that I am acquainted with, growing and even luxuriating in ordinary soil which is uniformly moist and shaded from sun. In such a place the blue of its flowers quite equals that of the Gentians, and of its colour we have none too many in the early months of the year, and none so easily accommodated. In gardens adjacent to the Thames I have been delighted to see this plant in plots 3 feet or 4 feet across, and freely dotted with its intense blue flowers, which alone produce such a charming picture, and no one having the spot I have described should be without this plant, while on light sandy soils it invariably presents a most miserable appearance, and in these only result in disappointment.

LYCHNIS LAGASCLE.—A charming species from the sub-alpine regions of the north-western Pyrenees that no rockery, large or small, should be without. About it there is a wealth of beauty and freedom of flowering peculiarly its own, such as should at once demand for it a place among all choice collections of hardy plants. Speaking of it in the "Botanical Magazine" some years ago, Sir J. D. Hooker says:—"The tendency of the plant is to form a hemispherical mass in the pot, when it resembles in habit and colour, but on a large scale, one of those lovely pink *Androsaces* of the glacial regions of the eastern Alps, which have hitherto all but defied our most skilful cultivators." But happily for us it presents not a tithe of the cultural difficulties which surround so many of the *Androsaces*, and seeing the flowers individually are three or four times larger and of the most lovely pink, and borne in such profusion, it may of a surety claim to be worth a dozen at least of those misty alpiners which baffle almost every attempt to grow them in this country. Not only is this *Lychnis* one of the brightest flowering of alpine plants, but, what is of equal importance, it is one of the easiest to cultivate, and no plant of its size could possibly produce seeds with greater freedom. Cuttings also root readily, so that any exceptionally good forms among the seedlings may be perpetuated with ease. Truly could our rock gardens be made gay and bright with many a rare gem did they produce seeds with half the freedom of this *Lychnis*. In good sandy loam it quickly forms a compact tuft, and by saving a few seeds annually and inserting in nooks and crevices here and there in rockeries or rough alpine walls a most pleasing effect would in time result.—J. H. E.

NOTES ON FRUIT TREES—APPLES.

(Continued from page 398).

STORING FRUIT.

KEEPING fruit is an important matter in supplying the markets. The essentials are a cool steady temperature and darkness. Warmth, air, and light accelerate ripening. Too dry an atmosphere induces shrivelling, too moist an atmosphere causes fruit to decay. In frosty weather, or at the commencement of frost, fruit, though not actually exposed to its influence, is dry because warmer than the surrounding air; but when a thaw sets in the fruit is soon covered with moisture through its being colder, therefore condensing the moisture of the air coming in contact with it. This alternate drying and wetting should be guarded against as much as possible, as to maintain the greatest possible uniformity of temperature is absolutely essential. To insure these conditions the means employed in gardens are diametrically opposed thereto. They rarely have other than solid brick walls, a single ceiling, and a site at the back of the glass structures. The keeping quality of the fruit in many cases is more dependent on the non-conducting straw used as a bed and cover for the fruit than anything the structures have to offer in the way of maintaining uniformity of temperature; indeed, they fluctuate through subjection to the vicissitudes of the surrounding atmosphere. If the air about them be warm, wet, or dry they undergo the same changes, the fruit keeps very indifferently, ripening or maturing early and uncertainly. In such structures fruit that would keep sound until the new year is, from early maturing, obliged to be put in the markets in November, and that which would keep until March or later has for similar reasons to be put in the market, not successively, as the American Apples, but all at once. This certainly is not a necessity of climate, for with properly constructed store-houses fruit is kept until a late period as fresh and sound as any imported,

although the American growers have the advantage of a uniform temperature through the prevalence of cold in the winter season. With a view to secure the essential keeping out of frost, a cool equable temperature, the store-house should be in an open, high in preference to a low, dry situation. Air should be circulated by double walls having a cavity or hollow between, the roof double ceiled, boarded, felted before slating. Internally the sides could be boarded instead of plastered, leaving an inch cavity between the walls and boarding. Doors with a 2-inch cavity, felted on the inner side of the outside boards, the shutters to the windows being treated in a similar manner to the doors. In that way the structure would be practically isolated from external influences. There remains the floor—internal or earth heat. To prevent this rising it should be asphalted, as should also the walls have been on the same level, and a double-boarded floor. An inch cavity between the lower boarding covered with hair felt would effectually prevent heat and moisture ascending. Fitted with shelves in the usual manner, a fruit room worthy of the name would be provided in place of fruit wasters that obtain in most establishments.

For large quantities of fruit, store-houses with double-boarded sides, ends, and roof, with a cavity between the boardings, the sides covered a foot thick, and the roof thatched a similar thickness with straw or preferably reeds, the roof projecting well over the sides, and with the ground sloping well away from the structure, nothing need be apprehended from wet. The doors could be made in a similar manner to those described above, or straw shutters could be used for them and the windows or openings for light when necessary in severe weather. Earth heat and damp could be remedied by concreting the floor; five parts gravel and one lime by measure form a suitable bottom. This will insure a little damp without being wet, which is requisite in the keeping of Apples, any likely access of earth heat being stopped by a covering of clean dry straw, the pathway being strewn with dry bracken.

GRASS VERSUS SOIL SURFACE.

In planting an orchard it is customary to merely make holes wider than the length of the roots when these are extended at full length; or perhaps stations are determined upon beforehand, the ground trenched or deeply stirred, and some manure added if the soil be considered poor. In others it is considered expedient to put in some concrete to prevent the roots from striking into the unfavourable subsoil, the soil being taken out 2 feet deep from 4 to 6 feet square, or in circles of 6 to 9 feet diameter. Six inches thickness of lime rubbish or concrete being put in, four or five parts loamy gravel to one part stone lime make a good concrete, which is more effective if some rough stones or brickbats be put in first and broken up so as to make a macadamised bottom, the surface of the concrete being convex—*i.e.*, highest in the middle, the soil, with probably an addition of fresh and some manure, being added. Those may be necessary in some localities and soils, and where they are essential the possessor of £100 or £1000 should not invest it in one acre or ten of such land for fruit culture. The time will come when the roots will extend beyond the concreted area, and what is to prevent them from passing into the unfavourable strata? The latter end will be worse than the beginning.

Trees planted in the turned up soil of the pits thrive for a time. They occupy the whole of the upturned soil in a few years, and then push their roots into the hard undisturbed soil—the roots cater for an increased head and crops of fruit. The stations were only made to give the trees a start, get them into bearing size quickly—the soil generally is sufficiently open, porous, and rich for Apples, trenching would make the trees grow too much. What of soils that are neither sufficiently friable nor fertile to admit of free progressive growth as well as carrying crops of fruit? Do they not fruit freely enough after three or five years when they have made and matured growth through the preparation made for the trees in the stations? The roots cannot penetrate the soil freely nor derive sufficient nutriment for the production of large fruit. The crops may be full, but the fruit small. The roots may, deprived of moisture at the surface, descend into the subsoil, and then it is its character that marks the difference between health and ill health. If it be necessary to prepare stations so as to give the trees a start, it surely is worth while to give them an opportunity of supporting their crops. To trench the whole of the ground at planting may be suicidal when the trees are put 30 feet apart, which is equally sacrificial, but there is no reason why the stirred soil of the stations should not be added to as the trees extend their roots, a 2 foot trench every year, and at almost every second until the whole of the ground is in its best possible form for permeation by the roots and the abstraction therefrom of its enriched elements resulting by the decay of the turfy matter. It is a question of grass versus fruit, of having tons of fodder or tons of fruit. A grass lawn is certainly pleasant to the eye, affords cleanly access to

the trees, and is useful as well as agreeable, yet there is no reason why the grass should not be periodically converted into humus by turning it under. Everybody knows that grass cut annually for fodder becomes coarse, though a stopgap it is not nutritious; where good hay is expected manure is put, but in orchards it is expected to have two cuttings of grass and a crop of Apples as well. That is the way the Apple (a decidedly British fruit) is grown to compete against the world. Every kind of crop is thought worthy of manure, the Apple has none; instead of Apples—large, bright, cheery, rich, sprightly, juicy—there are crab like, pitted, sour, worthless samples.

REGRAFTING.

Many orchards have trees which are not inaptly comparable to forests. They grow to the dimensions of hedgerow timber, have spreading umbrageous heads, dense from live and dead twigs, a thick-set of confusions. Others have already begun to die back, their days are done. The fruit mostly produced is small; it may be resultant of variety, of crowded heads, of poverty, of parasites smothering the life out of them. Are such worth troubling after? If healthy there is a certainty of full crops being had speedily by putting on new heads. Observation having been made and note taken of the kinds that succeed in the locality, not necessarily for adoption, but guidance in selecting the choicer kinds—newer, improved, or proven reliable sorts—we can proceed to cut off their heads, whereby all the neglected and accumulated filth of years, or may be generations, is got rid of, and by putting on new heads or re-grafting they will simply astonish the owner by the increased size, colour, and quality of the fruit produced, the customer being astounded at the superior article offered. Trees that are productive of fairly good fruits may by judiciously thinning the heads be made to produce larger and better coloured fruit, and all thrive better and longer by a turning over of the soil with as little damage to the roots as practicable, turning the turf under not more than 6 to 9 inches, but stirring twice as deep or more if the roots admit. If deficient of calcareous matter a dressing of lime may be given—6 tons per acre. The lime should be kept well up, not buried deeper than the turf. Then in autumn following a good manuring may be given, and in spring following it may be put down to grass. After breaking it up a root crop of any kind could be taken with an application of artificials. I find this plan answer admirably, the trees being rejuvenated by the grafting, and the soil restored to fertility.

Re-grafting is a ready means of making a tree produce good Apples in place of bad. Trees that are too vigorous, or are late in coming into bearing may be re-grafted in part or wholly with an early fruiting variety, so as to get some return for the outlay and the ground occupied. Blenheim Pippin is notoriously late in coming into bearing. Grafted on the Paradise stock it fruits earlier, and when repeatedly grafted the obstruction to the sap caused by the junctions acts similar to wounds or bruises on the stems, inducing the formation of fruit buds instead of too free a supply of sap provocative of growth. A tree of Blenheim Pippin having half its stems grafted with Cobham (Golden Ducat) would have half its growths productive of fruit in three years, its vigour kept under by the production of fruit in the Cobham parts tends to a similar disposition in its own, whilst the Cobham is increased in productive and colour of fruit. So free in growth and so healthy withal is Blenheim Pippin that a number of trees of it are a godsend if for nothing less than re-grafting with Cobham, which seems to appreciate the strength and vigour of the Blenheim Pippin. This is the only good that I can see in the recommendation to plant Blenheim Pippin, especially when the occupant of the land is reliant on its produce for subsistence.

Allusion has been made to the poverty-stricken nature of the ground of orchards. Everything in the way of organic matter, and a considerable amount of inorganic substance is abstracted from it, yet nothing or very rarely anything is put into it which is in any way likely to maintain its fertility. Manure certainly would not be thrown away, especially if the grass had not place, though there is no reason why it should not be made contributory to the enriching of the soil occasionally by being turned under. An occasional dressing of compost, in which lime forms a component, could not act other than beneficially, whilst artificials, so beneficial in their action on grass, would assuredly prove salutary in restoring some of the many elements removed. Phosphates never act other than usefully. They cause an early and increased production of roots, encourage surface rooting by attracting them to the surfaces in which it has become assimilated, and potash would assist materially to make available some of its inert constituents, whereby the trees would be increased in vigour and enhanced in quantity and quality of crop. Three cwt. of superphosphate and 1½ cwt. of muriate of potash per acre every other year would give a luxuriance to orchards to which they are

now strangers, and to all fruit trees a vigour that would greatly assist in turning the tide in favour of the home grower against the invasion of our markets by imported Apples.—G. ABBEY.



SUCKERS.

WE are constantly being told that if we would only grow our Roses on their own roots we should have no trouble with suckers; but as we persistently neglect this advice, thinking we know best, a word or two on the matter of this nuisance may be useful and seasonal.

Suckers on the Manetti are the most insidious. An experienced Rose grower will detect a shoot of it in a moment among a forest of branches; but it is certainly more like the Rose shoot than the Briar is, and often those who have given little attention to the matter are unable to distinguish it at all. Someone stated some time ago, in the Journal I think, that he had never viewed a collection of Roses without detecting it somewhere, and I remember myself going to inspect the Roses of a lady who had large gardens and a good staff of gardeners. When she asked me how it was she had so few blooms, I was obliged to say it was because there were very few Roses there. They were principally bushes of Manetti. Not long ago I saw a large plant of Manetti carefully trained up the south wall of a house, and later it was in bloom; and I have also found it tended and tied up to an arch as a pillar Rose. I do not want to reopen the Manetti controversy, but my contention is that if Manetti suckers be rigorously extirpated they must come to an end, for that the Manetti root perishes after a while. Have those who say it does not thus die ever had a Manetti sucker from a Rose they are sure has shown no such sucker, not even a leaf, for say four consecutive previous years?

Standard Roses, especially those that are extra tall or loosely staked, are generally the most productive of suckers. This seems to be a beautiful provision of Nature to prevent the stem being uprooted by the wind. The plant feels itself insecure, and so throws out a sucker, which continues underground for a short distance, and then makes a shoot upwards and a root downwards. This is an anchor, and I fully expect it would be usually found to go in the direction where it suffers most from wind, just as large trees exposed to strong breezes from one quarter will be found especially braced by roots, and balanced by long and heavy limbs on that side. Another similar sucker in two or three other directions, and the main stem is secured against the possibility of being uprooted by any gale. And the moral of this is keep your standards firmly staked, and do not have them too tall.

Briar cuttings ought to have no suckers if the buds were rigorously taken out from the original cutting; but they will sometimes, especially if the collar be above the surface of the ground. If a root gets exposed, or has an elbow too near the surface, suckers will often form readily; and of course, if the Rose dies from frost or feebleness while the roots are alive and healthy, the poor things must get rid of the sap they make somehow if they can, and they generally will. Roses on seedling Briars which are well established are, I think, the freest from suckers of all worked plants, but they make a great many the first year. My seedling Briars budded last season are forming a quantity, though the buds were inserted below the level of the ground. Some of them, though the Rose is growing, have a fresh crop of suckers every three or four days.

No doubt, the formation of these troublesome growths on all cut-back worked Roses is very much encouraged by late and severe pruning. The roots are healthy and strong, and very highly fed, and are working away, when growth is suddenly checked, and they naturally try to force the sap through any channel they can find or make. In getting rid of a sucker we should remember that if the last little bit be not taken out there will be trouble later on, perhaps for years, and it is therefore important to know how best to get it clean out at the socket. A chop from a spade or other cutting instrument will plainly not effect this, and may do injury to useful roots. Judicious hand-pulling I believe to be the best method; take hold of it as low down as possible, work it about to see which way it goes best; "gently does it," for it is very brittle, and will readily snap. If the soil is stiff and caked, loosen and remove it cautiously with an old knife, or something of the sort; keep shifting your hold as far down as you can, and then you must humour it. "Use him as though you loved him," as Izaak Walton said of the proper way of putting a worm on a hook: pull with a steady strain, this way or that way, up or down, as the feel of it seems to suggest; and when it does come at last look at the end to see whether it has come right out, and has broken after all, for in the latter case you must grub away again with your knife till you do get that last bit. It is astonishing what long and formidable suckers may be got clean out by thus carefully pulling them; but only this year's growth can be got at in this manner. A sucker chopped off last year is nearly certain to grow again, and the most cautious pulling will only get what has grown from the old bit. Bodily lifting the plant in winter and

paring the place with a sharp knife is about the only way of preventing an old sucker growing the next spring, and we should, therefore, be all the more cautious in getting fresh suckers clean out while we can.

But cannot we make suckers of any use? A few years ago an enthusiastic rosarian, who had a great many of these thick red fleshy shoots coming through the ground, said he was sure they ought to be as good as Asparagus, and I believe he did go so far as to have some of them boiled, but I do not fancy he repeated the experiment. It reminded me of a statement I saw in some paper or book that the roots of Spear Grass (*Triticum repens*) contained a good deal of nourishment, and that farmers ought to boil them down and feed their pigs on them. If these things were true, both rosarians and pigs might be amply and cheaply fed in some places that I know. I have also heard it suggested that bits of old suckers planted would make sufficiently strong growth to be useful as dwarf stocks. I do not know whether the experiment has ever been tried, but I fear there would be a great tendency to form fresh suckers when the time came for the growth to be cut back.

Any growth of the stock below the scion must be prejudicial to the latter, but my idea is, that if we can get the Briar to make wild growth above the place where it is budded, it may, in the case of varieties of weak growth and constitution, be "a succour" to the plant. (The joke is purposely fired off, in order to draw attention to the suggestion, which I have mentioned before in the Journal.) I have now a few plants of Horace Vernet which were budded on Briar cuttings the year before last. The stocks were unfortunately weak, and the maiden plants naturally followed suit. But the wild growth at the top was not entirely done away with, only pinched back, and as soon as the Rose had bloomed, the Briar was allowed to grow again above it. This would, I thought, strengthen the roots; and certainly the plants seem, contrary to their usual custom, to be breaking stronger this second year than they did the first.—W. R. RAILLEM.

P.S.—Mr. T. Crosswell is to be commended for his success with cuttings of Maréchal Niel. In this Rose especially, I find a great superiority in worked plants, and cannot help thinking that a single standard (at 2s. 6d.) planted and treated under glass, as previously described in the Journal, would have given him, with much less care and trouble, at least as many good blooms as one of his cuttings, in one year after planting, and perhaps double as many as the eight put together the next year.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

A MEETING of the above Association was held at the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, S.W., on Thursday, May 15th, T. F. Rivers, Esq., in the chair. The special object of the meeting was to consider the scheme for the fruit report which had been prepared by the sub-committee appointed for that purpose on May 1st. The Honorary Secretary in explaining the report and the method proposed to be adopted, stated that a work of this character had been part of the original intention of the Association, but until now they had not felt sufficiently strong to undertake it. They had, however, received so many encouraging assurances of assistance from members and correspondents throughout the kingdom that the majority of the difficulties had been removed. The pecuniary consideration was the only one of importance that remained, and that had been partly removed by the Duke of Bedford's contribution, while sufficient promises of support in other directions had been received to render it quite safe to proceed in the work. It was pointed out that according to the agricultural returns there was in 1888 a decrease in the land under fruit culture of over 3000 acres. In the autumn of that year the fruit conferences of the Association were held at the Crystal Palace, and as they were reported and noticed in over one hundred metropolitan and provincial papers the matter must have been brought to the attention of considerably more than a million persons. In the returns for 1889 there is an increase of nearly 6000 acres devoted to fruit either as orchards or small fruit, and the Association may fairly claim to have had a share in this extension. At the present time out of a total cultivated area in Great Britain of 32,000,000 acres, about 240,000 only are occupied with fruit, yet it is a matter of fact, within the knowledge of many persons, that thousands of acres under ordinary farm crops are barely paying the rent which could with moderate expenditure be made to yield a much better return under fruit culture. The matter must, however, be approached in a calm manner; very careful consideration is required, with practical knowledge as a guide, and a good cause has often been injured by ignorant enthusiasm and premature action. It is intended by the Association that the report to be prepared shall give a faithful and impartial description of the present condition and prospects of fruit culture for profit in Great Britain and Ireland; it will be made as comprehensive as possible, and no visionary projects will be propounded. It is hoped to render the work a reliable guide to intending fruit cultivators, and of service also to those already so engaged, and the Committee invite the assistance of all interested in a work of public importance.

The scheme submitted and adopted unanimously is as follows:—The introductory chapters will deal with climate and soils in relation to fruit culture, land tenure, rent rates and tithes, hardy fruit culture, fruit culture under glass, fruit preservation, stocks, insects, fungi, diseases and remedies. The report will include summaries of the chief

counties in Great Britain and Ireland in reference to fruit culture, with descriptions of orchards and fruit farms, also of market gardens and private gardens where fruit culture is a special feature. The details will comprise extent of land occupied, situation, soil and subsoil, age and character of trees, varieties, stocks, and methods of culture.

Sections will also be devoted to markets, dealing with supplies, salesmen's charges, packing, and cost of carriage; to expenses, returns, and profits, and to the prospects of fruit culture, pointing out the land and districts best suited for fruit culture, the best systems, and the varieties recommended.

Arrangements are being made to collect the information required through the Committee, the local secretaries, and the members of the Association, but assistance of any kind will be gladly welcomed.

It was announced that Mr. Joseph Cheal of Crawley was about to undertake a long tour in the fruit districts of the United States and Canada, and he was therefore appointed delegate from the Association, with the object of collecting as much information as possible bearing upon the fruit question, and he expects to be home in time to give the results of his experience at the September meeting in the Crystal Palace. Messrs. Castle and Gordon proposed to devote a holiday in Ireland this year to an investigation of the condition and prospects of fruit culture there, and were also appointed delegates from the Association.

The programmes for the Conference were discussed at some length, and Mr. J. Burn of Leicester, who was present, stated that the meeting to be held there in August had already excited much attention in the local papers. Arrangements are being made for a series of lectures in good districts during the autumn.

Some discussion arose concerning the use of Paris green and London purple as insecticides, and the general opinion was that they were dangerous compounds, needing much care in their application. The Chairman gave, as the result of an analysis of samples of the two substances that Paris green was an arsenite of copper $CuHA_5O_3$ or cupric arsenite, also known as Scheele's green. The basis of London purple is carbonate of lime, coloured with an arsenical aniline compound. It was stated that the old application for caterpillars, quassia, was still found more directly effective, used at the rate of 2 to 4 ozs. to the gallon of water, with similar quantities of softsoap. A hearty vote of thanks to the Chairman concluded the business.

CLASSIFICATION OF PICOTEES.

MR. JOE EDWARDS, Blackley, Manchester, writing to Mr. Dodwell on the classification of the Picotee, says, "I should like your opinion upon that part of Rule 7 of the northern section of the National Carnation Society's schedule, underlined in accompanying copy—viz., 'each Picotee shall have one colour only on the edge. Blooms having two or more colours on the edge are disqualified.' Are there any bizarred Picotees? and are they so undesirable as here implied? The rule, carried only by a very narrow majority, was raised because of the showing by Mr. Sydenham of Matthews' Novelty—a variety having pink and lilac for its margin—which, there being no class for this combination, was declared by a majority of the Judges to be outside competition, though the terms of the schedule simply said, 'twelve Picotees, all dissimilar.' Your answer in the gardening papers would be useful."

The rule is unwarrantable, and a grave offence. It proscribes or limits a point of chiefest excellence in florists' flowers—variety. "From whatever source, however arising, it is essential that the florists' flower, which would claim a high position, should not be deficient in this" (variety)—Rev. George Jeans.

I am surprised, indeed, to note the adoption of such a rule in these days. It is a survival of the barbarous ignorance which fifty years ago rejected the rose and salmon hues of the margins of Picotees, and declaring Sarah Payne to be "rubbish," withstood the recognition of the pink and purple in bizarres. With precisely the same propriety it might be ruled bizarres should not be accepted in the longitudinal markings, and I am astonished such a rule should have been issued by such an Association. I very unwillingly thus assume the censorship of my brother florists, but to my sense the rule is nothing less than a scandal, and I cannot hesitate as a florist, and for the maintenance of floral law, to say no power on earth should induce me to be a party to it. I am a unit amongst florists only, as all are, and I hold there is nothing more intolerable than the affectation of personal pretension, so I ask nothing to be conceded to my opinion; but as I have known no grosser violation of cardinal law during my long floricultural experience I cannot hesitate to declare not a day should be lost in obtaining its rejection. Whilst the rule stands violence is done to a cardinal law of floral excellence. Reject it, as from its inception it should have been rejected, and no wrong work will have been done to the few whose tastes, well or ill educated as may be thought, lead them to reject two colours for curvilinear markings. Individual preferences in such circumstances may lawfully be indulged, but no florist has the right to make his preferences the rule of his brother's life.—E. S. DODWELL, *The Cottage, Stanley Road, Oxford.*

MICROCACRYS TETRAGONA.

TASMANIA is not rich in Conifers, though examples of several genera unknown or rare in the northern hemisphere occur in the island, such

as *Arthrotaxis*, *Fitzroya*, *Dacrydium*, *Podocarpus*, and *Microcarys*; but few of these are confined to that country, some being common both to New Zealand and Australia. *Dacrydium Franklini*, the Huon Pine, is a well-known inhabitant of Tasmania, but the plant of which a spray is shown in the woodcut (fig. 61) is rare in its native country, and also rare in cultivation in England. It is, however, one of the most remarkable of the Conifers found at the Antipodes, and indeed in the whole family. The great peculiarity of the plant is that the female cones are of a semi-transparent texture, fleshy, and most brilliantly coloured, being of a rich red hue, that in sunlight is very striking. These cones, though small, are borne in considerable numbers on short branchlets, and, the main branches being of a decumbent or drooping

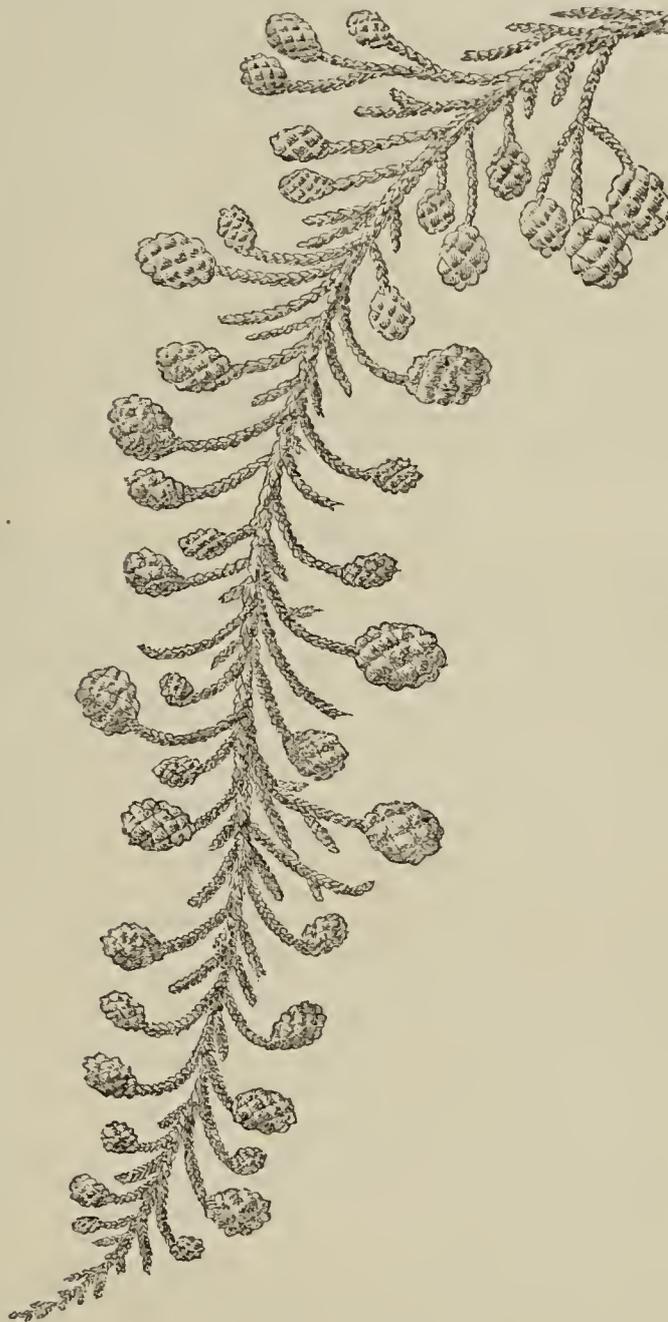


FIG. 61.—MICROCACRYS TETRAGONA.

habit, the plant has a graceful and really beautiful effect grown in a pot with the main stem secured to a stake. It is found growing on the western mountains of Tasmania, where it forms a low straggling bush, the branches being four-angled, as the specific name indicates, the leaves small and closely pressed to the stem. It was introduced to Kew about 1862 by W. Archer, Esq., of Cheshunt, and several plants in the temperate house there succeed very well, and produce their attractive cones very freely.

Several Conifers produce coloured fruits, but in most cases it is a disk, aril, or some appendage that is so coloured, and not a true cone, as with the *Microcarys*. For instance, the fleshy aril of the common Yew is well known, and in the genus *Podocarpus* several similar examples occur, one of the most noteworthy being *P. neriifolia*, the Oleander-leaved Podocarp. The fruit of this species has a large fleshy globular or ovoid bright red disk about half an inch long, upon the top

of which is seated the seed, a true fruit about the size of a large pea, but more egg-shaped and bright green, forming a most peculiar contrast with the richly coloured disk.—L. C.

CULTIVATION OF THE POTATO IN JERSEY.

THE cultivation of the Potato in Jersey may be said to be quite a modern industry. It is not more than twenty years since the Jersey farmers first began growing the early Potatoes for the English market, but it is within the last ten years that the culture has attained its present dimensions. Anyone visiting the island for the first time during the early part of the year would be surprised to see the extent to which the Potato is grown. It is only during the first half of the year that it is apparent there is an unusual amount of land devoted to this one crop, for when the ground has been cleared of the Potatoes not a day is lost in getting in a second crop, and the country begins to assume quite a different aspect. It is no exaggeration to say that fully one-half of the agricultural land is during the first half of the year devoted to the cultivation of the Potato. There is no doubt the soil and climate are highly favourable to the production of fine crops of early Potatoes, but it is only by high culture that the crop will pay even in Jersey. The Jersey farmers and gardeners have many advantages over their English brethren with regard to soil and climate, but they have also the disadvantage of very high rent, and also being further from the market. Therefore the one object they have in view is to get their crops into the market before the English growers. Great attention has been given to this during the last few years, for when once the English growers begin to lift their crops it does not pay the Jersey farmers to send their crops to England. My object, therefore, will be to briefly describe the Jersey ways of growing the Potato.

SOIL AND MANURE.

The soil of Jersey may be divided into three classes—light, medium, and strong. Near the coast, on the margin of some of the bays the soil is of a sandy nature, but as the island jumps up abruptly out of the sea and high above its level the soil is of a very rich nature, and about 3 feet deep. Most of it is what may be termed a rich yellow loam, neither too light nor too strong, and very free from stones. In fact, if I wanted to set anyone a task that I knew they could not accomplish I should set them to find a basketful of stones in a newly ploughed field, and give them a day to do it in. It is soil that would gladden the heart of a Chrysanthemum grower intent on shining at an exhibition. But it must not be supposed that the soil is everything, for I am convinced that climate counts for more than either soil or manure, and it is doubtless because the climate is so favourable to the rapid growth of the Potato that it has been so much grown as a market crop. Rich as the soil is it is necessary that it should be well manured every year when under Potatoes if it is to be kept in good condition, for it must be remembered that after the Potatoes are off no time is lost in getting in a second crop, and really heavy crops too. I have often seen more than 20 tons of Turnips obtained from an acre of ground after Potatoes, so where much is taken off the land much must be put into it. Great care is taken of all the farmyard manure, and it is usually reserved for the Potato ground, very seldom is any used by the farmers for any other crop. In order that nothing may be lost liquid manure tanks are built near all the cowsheds and stables, and the produce reserved for the grass land.

Although so much care is taken of all the manure, it is far short of what is required for the extent of ground under Potatoes, therefore great use is made of seaweed—not only for the Potato, but for grass and other crops. The seaweed is also much used for mulching Vine borders and fruit trees, and after close observation I consider it a decided acquisition on the farm and in the garden, and I strongly recommend its use to all that can get it. In addition, artificial manures are always used for Potatoes. No one thinks of planting a plot of ground with Potatoes intended for market without using guano in some form. It is not necessary for me to go into that subject fully, as most people have their own views on the use of guano; but for earliness it is a decided advantage to use some kind of guano. I may say that it is a subject that demands the serious consideration of all employed in producing food from the soil. This subject of chemical manures has been well considered by the Jersey farmers, and the results prove that it is a decided gain. I have known cases where at planting time a single row across the field had been planted without it, and marked; the result proved that where the guano was used the crop was as heavy again, but this was before the tubers were ripe, yet I would never use it on crops for my own consumption. I may here

state that although Jersey is only a very small place, from £50,000 to £60,000 is spent yearly on artificial manures.

PREPARING THE SETS.

The cultivation of the Potato begins with the preparation of the seed, and on this point Jersey farmers and gardeners are very particular. The sets when ready for planting have stiff sprouts an inch or so long and nearly bursting into leaf, and with this object in view they begin to prepare the seed as soon as the crop is lifted. All seed Potatoes are set up in boxes made for the purpose. These are made of half-inch boards, 24 inches long and 12 inches wide, and 2½ inches deep; four pieces, 7 inches long and 1 inch square, are nailed in the corners; to the corner pieces across the ends is secured another piece 2½ inches broad; and from end to end of the box, and fitted into the cross pieces, is a piece 1 inch square; this strengthens the box, and serves as a handle to carry it. Made thus they can be stacked one above the other to any height, admitting light and air, which prevents the sprouts being drawn. Owing to the demand for these boxes they can be bought at 25s. per 100. When the seed is lifted the boxes are generally taken to the field, and the sets sorted in three sizes, and placed loosely in the boxes. Should the weather be fine and dry they are left in the open for a few days; they are then placed in open sheds until time can be found to set them up and store them away. The setting up is generally done on wet days, and when tightly packed in the boxes with the 'eyes' upwards they are stored away in light and airy rooms.

CHEMICAL MANURES.

The chemical manures used for Potatoes in Jersey are almost most varied. Owing to the large quantities employed many makers and merchants vie with each other to procure as many orders as possible. I have to-day been in conversation with a guano merchant, and he tells me that he has during the present season sold no less than 600 tons of guano of the value of £5000, the guano being of five different kinds according to the soil and district in which it was going to be used. A given amount of some of the chemicals is insisted on in all the manures, but it varies according to the light or heavy soils. A manure that would be valuable on the strong land in the highest parts of the island would be useless on the light and sandy soil near the sea. Very little of the Peruvian guano is now used, as it is not quick enough in action for Jersey. However, most of the manures used contain 8 per cent of ammonia, 5 per cent. nitrate of soda, 20 per cent. of phosphates, and 10 per cent. of potash in some form. Superphosphates and other substances are used to make up the bulk according to the views of the maker. The following mixture is what I have made and used, and found it not only valuable for Potatoes, but also for Vines, Tomatoes, Pears, and all kitchen garden crops: 2 cwt. sulphate of ammonia, 8 cwt. of fine bone dust, 1 cwt. nitrate of soda, and 4 cwt. of burnt seaweed (ashes). The seaweed ashes being very rich in potash renders it valuable as a mixture. This mixture forms a strong manure, and requires to be used with great care. For Potatoes it is applied at the time of planting. The ground having been previously well prepared shallow drills are turned out, then the manure is spread in the drills with the hand at the rate of 40 lbs. for every hundred square yards planted. This is quite enough to use, and amply repays the grower for its cost.

Many of the largest growers have had large rooms built specially for storing the sets, others not so well circumstanced use any spare rooms in their houses; but many of the farmers who are also Grape growers use their vineries for the purpose. A change of seed is by many growers considered necessary every two years or so; by this I mean from a colder and later climate than Jersey. Many growers procure seed from Scotland each year, and keep the crop from them for seed the following year, for the Scotch-grown seed is not early enough for Jersey the first year; but the crop is always larger the first and second year than from seed that has been grown in Jersey for a greater length of time.

PREPARING THE GROUND.

The preparation of the ground for Potatoes in Jersey is very different from what it is in England, and I may say it would surprise many English farmers and gardeners to be on a Jersey farm when the large plough is at work. I have often seen fifteen horses and fifteen to twenty men at work in a small field of not more than two acres on the large plough day. The ground is first scarified to the depth of 2 or 3 inches, afterwards it is well harrowed, then a deep trench is worked out down the centre of the field with the spade, and the manure is put on; some growers again harrow the ground to mix the manure with the loose earth. Many of the farmers only keep one horse, so a number

of them join and help each other to plough the ground. A day is fixed on which they shall go to each farm, and a high time they have, I can tell you. The work goes on cheerily with the ploughmen, for they are always in a merry mood on the big plough day. Beer, cider, whisky, and brandy flow like water, and the farmers delight in having a jollification when the day's work is done. Two ploughs are used. The first is drawn with from two to four horses; this turns in the manure, weeds, and loose earth into the trench or furrow, which is 14 inches wide and 18 inches deep. Then comes the big plough, drawn by six or eight and sometimes twelve horses; this ploughs up the subsoil to the depth of 12 or 14 inches. It will thus be seen that the ground is worked to the depth of 18 inches. Some of the farmers work the ground to a greater depth than this when it has been under Potatoes for many years. Owing to the great size of the plough the ground is turned up somewhat roughly, so men are placed along the furrows to work the ground even as the ploughing proceeds, and when a field is finished it presents a clean and even surface. The sides and ends of each field are dug with the spade, so that not an inch of ground is wasted; in fact, I can say, without any misgiving, that there are few kitchen gardens in England so closely cropped as the Jersey farmers crop their ground. From the time the ground is ploughed to the lifting of the crop many people do not allow a horse to go on the ground, so that the ground is kept light. However, some growers use the horse on a fine dry day to lightly harrow the ground a few days before planting, but more often one may see the harrow drawn about the fields by lightfooted French damseis, who come over for the Potato season. There being very little in the way of sport or recreation for the farmers or their men, they endeavour to make the big plough day a day of pleasure as well as of work, and it is always being wound up with a feast, and often with a dance.—HERBERT PARKER, *Jersey*.

(To be continued.)

THE FLORISTS' TULIP.

[Read at a meeting of the Cambridge Horticultural and Florists' Society, by Mr. Alfred Chater.]

THE cultivation of this beautiful flower is my pleasant theme. At our meeting last month, Mr. Warren, speaking of the Auricula, said, if you wish to grow it properly you must go at it with your whole heart and soul, in fact you must love it. I do love the Tulip. It was my first love. I remember it is more than fifty years since I was taken into the greenhouse and shown a pot of forced early Van Thol Tulips. The sight of those lovely flowers, with their bright crimson petals tinged with gold, touched a tender chord in my breast and caused it to vibrate, and as the years have rolled on, and the seasons come round for the flowering of the Tulip, those vibrations have gone on increasing in force and energy, and I say the love for this flower is stronger now than ever it was before. I am about to tell you how I grow these choice specimens we have before us this evening. It has been a labour of love for many years. When seven years old I had my Tulip bed, and so it has gone on to the present time. The pleasure of the planting, the watching for the first shoot, the anxious waiting for the lovely blooms, and then the happy time when you see them as they are this evening in all their beauty. And now for the subject. I shall not speak of the Tulip as a hotanist, as that would take an evening of itself, but as a florists' flower, and the treatment of a florist.

Tulip *Gesneriana* is a native of Cappadocia in Persia; from there it was taken to the islands in the Levant, the climate and soil being so suitable for its growth, it seeded freely; the seed spreading about germinated, and so the plant became naturalised there. It was introduced into Europe in the year 1554 by Busberuius, who sent seeds and bulbs from Constantinople to Vienna. About five years after, in 1559, Conrad Gesner, the botanist, first saw the Tulip in a garden at Augsburg. He published observations upon it, and had it illustrated in his botanical works, and from that it received the name of *Tulipa Gesneriana*. It is called the King of Florists' Flowers, having been a prime object of attention with cultivators for more than three centuries. James Garret was the first to cultivate the flower in England in 1557, and it was during the seventeenth century when the Tulipomania was at its height. Some bulbs fetched over £500 each: one named Viceroy was sold for £460, another *Semper Augustus* for £846, and as much as £2500 and £5500. Many flowers raised in England have made large sums. Polyphemus was sold for £50, Fanny Kemble £109, Everard was sold in 1838 for £140, and coming nearer home Richard Headly of Stapleford sold his seedling Sarah Headly for £60. There are some very amusing anecdotes told about the Tulip, which you will find in Mackay's extraordinary "Popular Delusions." Dumas, the great French

novelist, wrote the "History of the Black Tulip," which is translated into English, and well worth reading.

THE PROPERTIES OF A FINE TULIP.—The habit should be strong and growth robust. The flower should be large and composed of six petals and six stamens, forming almost a perfect cup—that is, two-thirds of a hollow ball, all the petals with perfectly entire and smooth edges, the top of each broad and well rounded. The ground colour of the flower at the bottom of the cup and the stamens must be a clear white or yellow, and the various rich coloured stripes, which are the principal ornament of a fine Tulip, should be regular, hold, and distinct. The feather, whether broad or narrow, must be clear and distinct, forming fine unbroken lines round each petal. The flame should have besides the feather a rich beam up the rib of each of the petals, branching off on either side, and the points meeting the feather. They are divided into three classes, feathered and flamed to each.

A rose is feathered or flamed with rose, scarlet, crimson, or cherry on a white ground.

A hyblœmen has a white ground marked or striped with violet or purple only of various shades.

A bizarre has a yellow ground with purple, black, or scarlet of different shades.

SITUATION AND SOIL.—The situation for the bed should be in an open airy part of the garden, well sheltered from the north-east winds. The Tulip will grow in any ordinary garden soil, but prefers a rich sandy loam. To prepare soil for making a bed get some good rich loam or grass sods that have been taken from a good old pasture, and have them laid up in a heap for eighteen months or two years; add some good leaf mould and well decayed stable manure well mixed; turn the heap over two or three times, and let it lay for a few weeks; then pass the compost through a coarse sieve. I prefer a bed a yard wide, with room to plant five hulhs in the row. Dig it out 2 feet deep, see that it is well drained, fill in one foot with good decayed manure, and the coarse siftings well mixed together; then fill up with the prepared soil. If an old bed, after you have taken up the hulhs in June give it two or three good soakings with liquid manure from a cowshed. About the end of August or beginning of September dig out the top a foot deep, and lay it lightly on the sides, so that the air can pass into it. Put some good decayed manure on the bottom of the bed and dig it a spit deep, well mixing the dung with the earth, laying it quite loose. About the middle of October fork the bottom of the bed over again; then fill it with the earth from the sides, mixing some leaf mould with it, leaving it as loose as possible rather higher in the centre, so that it will only require raking smooth at the time of planting.

PLANTING.—The best time for planting is the first half of November, or as near the 9th as possible, as this is the great day for planting. Mark out the rows 6 inches apart across the bed and 8 or 9 inches from row to row, then dib holes about 5 inches deep, not more, place sand in each hole, then the bulb, which also cover with sand. This is to keep the bulbs well drained and free from worms. Rake the bed, leaving it highest in the centre, so that the rain can run off. It will require nothing else to be done until February, when the growth will appear through the soil. At this time the plants require to be carefully examined to see if there is any diseased foliage. If you find any cut it off with a sharp knife; choose a dry day for this operation, and the wound will heal at once; loosen the soil with a Dutch hoe, place some hoops on the bed, and cover with fine netting to break the frost. When the flower buds show put some tiffany over the netting to protect the flowers from hailstorms, which are so frequent in the month of April. As soon as the colour is visible cover the bed with an awning of canvas or cotton, as exposure to either sun or rain is apt to make the colours run. Tulips do not require to be artificially watered. When in bloom correct your hook, and see that all the flowers are properly named.

TAKING UP AND STORING THE BULBS.—When the petals commence falling remove the awning. The seed vessels should be immediately broken off close to the stem, because if left it will considerably weaken the bulb for the next year. About the end of June or beginning of July the bulbs will be ready to take up. Be careful not to break off the stems, but cut them about 3 inches from the bulb, and leave the remainder with the rootlets on the bulbs, and place them on some boarding in a dry, airy place for a few days. When thoroughly dry the old stem with the fibres will come off freely. Place each bulb in its proper compartment in the drawers, each row correctly numbered, and there they may remain until the season for planting comes round again.

RAISING NEW VARIETIES.—There are many opinions about seed and seeding. The old plan is to work upon breeders or unbroken

flowers. I do not agree with this. I much prefer working on a good strong, healthy, broken or rectified Tulip rather than chance a breeder, for I have some at the present time that have been in the breeder state over thirty years. They were raised by Mr. Twitchett, a good florist, at Stapleford, and have not broken yet. They are of good habit, with clear base and fine blooms, but what chance is there of their progeny breaking if the mother is so conservative and stubborn and will not move on? I prefer taking an improved flower, and work at that which seems to me the easiest way, and it takes less time, because there is a greater chance of its breaking.

RAISING SEED.—First decide on those flowers which you intend to work upon. Let them be of strong healthy habit, good, clear, and pure, also the colours you want. Choose the brightest shades to work from, and keep each class distinct. Make a small bed on a warm border where you can easily protect them; you will not require many, two or three dozen will be quite enough. It is much better to plant them on a separate bed, as they will require to remain in the ground a longer time to ripen the seed pods. As soon as the flower opens carefully take out the stamens of those that you intend impregnating, and when you see moisture on the pistillum apply pollen from the flower from which you wish to get a new colour. Be careful not to impregnate a yellow ground with a white ground flower, or a white with a yellow ground. After crossing, place a piece of gauze or muslin over the flower to keep the bees from it, and ticket each flower with the name of the cross. The pericarpium must remain on the plant until it is of a brownish colour and begins to open. This will be about the end of July or beginning of August, cut it off the stem, and lay it in the sun to dry.

SOWING.—When is the proper time to sow the seed? Some florists sow at the time of planting the bulbs, some in January, others in April. I prefer sowing, if the seed is well ripe, the second week in August, or sooner if possible, because new seed germinates quickly. Plants appear in about a fortnight or three weeks, and have two months at least to form bulbs; if kept in a cool greenhouse they will grow for another month. By this early sowing a year is gained, as it takes four or five years for seedlings to flower. It is best to sow the seed in rather shallow pans, as the root from the seed runs down a long way, and as soon as it touches the bottom it will stop the flow of the sap and cause it to form the bulb. The plants must be kept in the pan, and when ripe after the second growth they may be transplanted into a bed early in the autumn.

Seedlings when they first bloom are without stripes and markings, with a yellow or white base, and the upright portions of the petals are self coloured, brown, red, rose, purple, scarlet, &c. Sometimes the first flower will break, but not very often. It takes from five to ten years. If any are dirty or not possessed of good properties throw them away at once. Be careful in keeping each plant with its offset distinct, then if it should turn out a good flower you know how many you have of it. Breeders which have a bad base but clear filament should not be thrown away, as they generally break clear. If the filaments are discoloured the ground of the petal will always remain dirty. A good Tulip must have the filaments and the ground of the same colour.



EVENTS OF THE WEEK.—The great horticultural event of the week will be the Show in the Temple Gardens by the Royal Horticultural Society on Wednesday and Thursday, May 28th and 29th. This is expected to be an important display, and the fact that the Prince of Wales has promised to open the Show will alone ensure a good attendance of visitors. No doubt Orchids will be largely represented. The miscellaneous groups are also expected to occupy considerable space. The Royal Society will meet on Thursday, May 22nd, at 4.30 P.M., and the Quekett Club on Friday at 8 P.M.

— **THE WEATHER IN THE SOUTH.**—Notwithstanding the rather cool wind, the temperature during the past week has risen greatly. Upon several mornings it has reached 60° in the shade at 8 A.M., and with the occasional showers has assisted garden occupants enormously. Trees are now in their freshest and best condition, Hawthorns and Lilacs rendering shrubberies gay and gardens fragrant.

— **THE WEATHER IN THE NORTH.**—"B. D." writes from Perthshire:—"May 12th-19th. Rain has fallen more or less heavily on five days of the week. Temperature has never been under 40°, and vegetation has rushed on rapidly. The 17th was a most pleasant day, mild, with varied shade and sunshine."

— **MR. JAMES BACKHOUSE, JUN.,** of the York Nurseries, who was married on 15th inst., signalled the happy event by giving the employes (some one hundred and twenty) a trip to Scarborough, where a most enjoyable day was spent. Dinner was served at the Royal Hotel, Mr. Gray, the manager, presiding. He was supported by Messrs. Potter, Marshall, and Webster. After dinner speeches were made thanking Mr. Backhouse for his kindness, and a telegram was despatched wishing the newly married pair God speed. The party returned by the 8.45 train, highly pleased with the day's outing.

— **EARLY PEAS.**—Mr. T. H. Slade writes:—"On January 8th I sowed Chelsea Gem Pea in pots, and gathered the first dish on May 17th. They were placed in heat, and when large enough for planting were placed in trenches in a cool orchard house. I regard this as an excellent first early Pea."

— **NOBLE STRAWBERRY.**—Your correspondent "Craven" asks about the flavour of Noble Strawberry. We have had it on trial this season with other varieties, and my employer and her guests pronounced it very good. I also tasted it, and considered it very good indeed, but not equal to Keens' Seedling when the latter is at its best. We have also tried King of the Earlies, but shall not grow it again, it being a poor cropper and very small. Our Strawberries have been watered with clean water only, but have been liberally top-dressed with Thompson's manure.—C. PORTSMOUTH.

— **PROLIFEROUS BROCCOLI.**—Last year Messrs. Sutton & Sons sent us a remarkable Broccoli with several branches each bearing good sized heads. We have received another plant, and cut from it a central head 7 inches in diameter, with six surrounding heads, two 5 inches, two 4 inches, and two 3 inches in diameter, all close, and in good condition for cooking. We are informed that every plant in the Reading trial grounds branched similarly, and not one was destroyed by frost.

— I HAVE never had any plant troubled with TOMATO DISEASE, but I once saw a very bad attack. Two large span-roofed houses were filled with Tomatoes, being grown for market, when to hurry the fruit on in one of the houses it was kept almost closed, consequently the temperature rose high during the day with sun heat, and upon entering the house it was very close and stuffy. The neighbouring house was not attacked. I think a little artificial heat during the night and on dull wet days with a dry atmosphere and free ventilation would meet the evil.

— **PRUNING VERSUS NON-PRUNING OF APPLES.**—I have observed a note or two from correspondents as to the advisability of pruning the same season as planting, or not until the following year, one even going so far as to regret not pruning all his when planted last year. As a set-off, I have seen a large plantation which was planted and pruned last year, and a more miserable growth there could not possibly be. I have had conversation on the subject with two of our largest fruit-tree nurserymen, and they strongly condemn the pruning of either Apples or Pears the same season as planting. Instead of being a season lost it is the other way.

— **THE colour of the bloom of the excellent spring-flowering plant, CLIVIAS,** is much more dense when the plants are grown fully exposed to the sun; in fact, amongst our seedlings the colour was equal to some of the high-priced new varieties. Probably, if the newer varieties were grown exposed, the improvement on the old form would be much more marked.

— WE find **NEPENTHES MASTERSIANA** excellent, being most vigorous and producing its very handsome pitchers freely. Formerly we grew our Nepenthes in baskets, but since taking to pot culture the improvement is very marked. Although Nepenthes are not adapted for house plants on a decorative point of view, yet a few in a plant stove always attract attention, as being one of Nature's wonderful productions. When judiciously arranged in groups of plants at flower shows they are most effective.

— **PHENIX RUPICOLA** is an excellent Palm, and demands attention on account of its handsome appearance and adaptability as a decorative plant. It is graceful as a table plant, and also in larger specimens for arranging in rooms.—A. YOUNG.

— **SPARROWS.**—I observe from my window sparrows busily engaged searching for caterpillars on the Cherry trees, which, although profuse in blossom, the bees have scarcely visited. I have long been of the opinion that the sparrows' desire for fruit buds is because of an unnatural thirst being created by having access to food containing salt, and I am confirmed in this opinion because in rural districts where such food is entirely absent fruit bushes are less injured than when near towns.

— **SUGAR AS A FERTILISER.**—About the beginning of the present century Sir Humphrey Davy, amongst his many experiments with different ingredients as fertilisers, found sugar to be very effective. I have been trying its effect upon different plants, and find it a safe and yet powerful fertiliser. It has had a marked effect upon a Geranium, completely altering its appearance and habit of growth from a sickly look to one of robustness and freshness without lankiness; it also greatly increased the chlorophyl, and I have no doubt the brilliancy of the flowers will be enhanced. Other plants have been similarly benefited by its application.—W. T.

— **ORCHID EXHIBITION.**—The beautiful Orchid Exhibition, now being held by Mr. William Bull at 536, King's Road, Chelsea, has just been honoured with a visit from H.R. and L.H. The Duchess of Edinburgh, attended by Lady Emma Osborne and Col. The Hon. W. J. Colville. It has also been visited by the Comte de Paris, the Duke and Duchess of Sutherland, Lord Calthorpe, Marquis of Northampton, Lord Hillingdon, Lord and Lady Maenaghten, Viscount and Viscountess Sherbrooke, Lord and Lady Lamington, Lord and Lady Seton, Lord Carew, Lord Digby, Lord and Lady William Cecil, Lady Mostyn, Countess Dowager of Morley, Lord and Lady D'Arcy Osborne, Lady Theodora Guest, Countess Sondes, Lady Ashburton, Lady Layard, Lord and Lady Lawrence, Sir Hy. and Lady Meysey Thompson, Sir H. H. Vivian, Sir Thos. and Lady Storey, Sir Harold and Lady Pelly, Sir Julian Goldsmid, &c.

— **CANKER IN MELONS.**—Various causes are assigned as the source of this dreaded evil, and one of the principal is in burying the stems too deeply at planting. It is a hackneyed phrase to advise planting Melons up to the seed leaves, though a greater mistake could not be made. It is also a rule to sow several seeds in a pot, then to re-pot the seedlings, and often twisting the stem round so as to get the soil up to the seed leaves. We sow the seeds singly in small pots, which have previously been filled with soil within half an inch of the top. The seed is placed the same depth beneath the soil, and as soon as it has germinated and the seedlings require support small sticks are placed to each. When ready for planting the soil is only barely placed above the roots and ball of soil, so the stem up to the seed leaves is 3 or 4 inches long. By carrying out the above practice we are never troubled with canker in Melons.

— **THE FRUIT CROP.**—It is rather early yet to judge of the condition of the fruit crop, but the outlook is very promising, especially where the dreaded caterpillar did not appear last season. In this garden all the fruit trees are young, and only planted within the last three or four years. Peaches and Nectarines are promising, and all have set a heavy crop without exception; in fact, like the proverbial "ropes of Onions." Apriots are very good, in fact better than they have been for years. Pears are not very good, but as our trees are young this may account for it, but as we have a quantity of trees there will be plenty. Louise Bonne of Jersey and Beurré Hardy are exceptions, in fact it seems general for the former. Plums are partial, but the blossom was healthy, and the petals fell quickly, so we may hope for a crop. Damsons, of which this neighbourhood is famous, will be abundant if all goes well. Cherries are now full of bloom, and this is a Cherry district, but the blossom is very late. As a rule the Cherries are out before the Damsons, but from some unaccountable reason these were out of blossom before the former came in. Apples are showing well, but I hear that in some parts the blossom is scarce. Ecklinville Seedling, as bushes on the Crab, is showing profusely, and whatever the advocates of the Nonesuch stock say, I shall keep to this stock for the Ecklinville, both for the gentleman's or cottager's garden, and for home consumption or profit. It does not make a large tree, and will continue growing and bearing when, I venture to predict, the Nonesuch will be worn out. Worcester Pearmain is also showing well. Gooseberries and Black Currants are abundant, but Reds are not looking so well. The bloom has been a long time in coming out. Strawberries are showing very strong. But after all, however promising the outlook, we must wait

for another month at least to judge of the certainty of our staple kinds, such as Apples, Pears, and Plums.—A. YOUNG, *Abberley Hall Gardens, Stourport.*

THE CARNATION.

(Continued from page 402.)

SOME OF THE BEST SORTS TO GROW.

THE varieties in cultivation are exceedingly numerous in the different classes, and to which new sorts are being frequently added, more so to the perpetual varieties. These seem to become more popular than ever. The latest introduction seems to be the red Souvenir de Malmaison. If it be equal in size and fragrance to the older variety it will be a decided acquisition. The following is a list of some of the best varieties of the various classes, beginning with the summer-flowering kinds.

Flakes, Scarlet.—A. Holmes (Dodwell), Annihilation (Jackson), Clipper (Fletcher), Dan Godfrey (Holmes), Henry Cannell (Dodwell), Illumination (Puxley), John Bayley (Dodwell), John Ball (Dodwell), Master Richard (Dodwell), Robert Morris (Dodwell), Sportsman (Fletcher), Thomas (Tomes).

Pink Flakes.—Biddy Malone (Dodwell), Dorothy's Sister (Dodwell), Jane Merryweather (Wood), Jessica (Turner), Lilly Cannell (Dodwell), Mrs. Horne (Dodwell), Mrs. Buckley (Fletcher), Mrs. Anderson (Dodwell), Rose of Stapleford (Holmes), Rob Roy (Gorton), Thalia (Dodwell), Pretty Jane (Dodwell).

Purple Flakes.—Attraction (Fletcher), Beauty of Woodhouse (Mansley), Earl Stamford (Elliott), Mayor of Oxford (Dodwell), Master Slender (Dodwell), Mayor of Nottingham (Taylor), Lady Pae (Haslam), Master of Balliol (Dodwell), Juno's Daughter (Dodwell), Squire Trow (Jackson), Squire Whitbourn (Dodwell).

Bizarres, Scarlet.—Arthur Brown (Dodwell), Guardsman (Ward), Duke of Grafton (Hooper), George (Dodwell), Lord Napier (Taylor), Mr. Fawcett (Fletcher), Master Stanley (Dodwell), Robert Lord (Dodwell), Squire Potts (Dodwell), William Spoor (Adams), William Skirving (Dodwell), William Syms (Dodwell).

Crimson Bizarres.—Black Diamond (Haines), Dr. Croin (Dodwell), Eccentric Jack (Fletcher), Edward Roman (Dodwell), Faust (Dodwell), E. Dodwell (Hewit), Grenadier (Dodwell), Harrison Weir (Dodwell), Jenny Lind (Puxley), Isaac Wilkinson (Turner), Queen Victoria (Fletcher), Shirley Hibberd (Dodwell).

Purple Bizarres.—Falconbridge (May), James Taylor (Gibbons), Lord Clifton (Puxley), Miss Harrison (Dodwell), Mrs. Barlow (Dodwell), Madame Giles (Dodwell), Clive (Fletcher), Princess Beatrice (Beardsley), Sarah Payne (Ware), Tom Foster (Dodwell), T. S. Ware (Dodwell), Thomas Anstiss (Dodwell).

Sels.—Albert (Turner), purple; Alae Ayres, white, marked carmine; Auctioneer (Ware), magenta; Constance (Dodwell), rich rose; Cynthia (Dodwell) rose; Daniel Delworth (Dodwell), purple; Gertrude Leigh (Ware), pink; Gloire de Nancy (Lemoine), pure white; King of the Yellows (Abercrombie), Lady Rosebery (Turner) yellow; W. P. Milner (Fletcher), white; Old Double Clove, crimson.

Perpetuals.—Admiral Coubret, deep pink; Alegatière, rich red; Bridesmaid, white; Germania, light yellow; James Veitch, flaked, striped crimson; Le Belle, pure white; Lucifer, scarlet; James Sisley, yellow, red edged; La Triomphe de Lyon, rich red; Miss Jolliffe, soft pink; Mrs. Hawtry, soft yellow; Souvenir de la Malmaison, blush white; Vulcan, bright red; White Swan; Whipper-in, scarlet, dark striped; Irma, deep rose; Zouave, red.—DAVID COOPER.

WATERING SHRUBS.

IN some soils it is not necessary to water newly transplanted shrubs and trees, but were this non-watering system to be followed indiscriminately the result in some cases would be disastrous. In sandy and gravelly soils, and in districts where the spring rainfall is small, it has been my fortune to see these two extremes, if I may so call them, carried out, and the result under the non-watering system was a great loss, and long dwindling in the plants which did not succumb. Under the watering system deaths were few, and well-rooted healthy plants quickly recovered from the removal effects. Even during the course of the present spring I have found it necessary to apply water to large and small plants, in some cases with good roots, and in others with only the bare fibrous roots as received from nurseries.

The past winter was dry in the extreme, and by the beginning of March large, shrubs transplanted in the previous October

showed by the drooping foliage that they required water, and examination of the soil showed great dryness. Since that time all shrubs transplanted up to the beginning of April were thoroughly watered twice, spring planted shrubs being well watered as they are placed in the soil. By continuing to water as required until soaking rains come, all well-rooted healthy plants will make roots sufficient to keep them in fairly good condition, and make it impossible to say they had been removed at all; and when rain comes most of them will be practically established, and need no further attention.

I have no doubt that many transplanters will consider the watering of well prepared shrubs quite unnecessary; but I can safely affirm that I do not know an instance of transplanting in a dry locality and with a dry soil to deal with, where a shrub or a tree, unless of a very small size, could be left to itself without suffering for long after. The first essential under such local conditions is to see that a good ball of roots is secured, by cutting in the roots some months previous to removal; then, following on that, water must be given until the roots have taken to the new soil. I consider the method of watering so important that one man is deputed solely for this work. He knows how to apply it so that the plant may benefit, and not the surrounding soil at the plant's expense. A plant which may require say four gallons to thoroughly moisten the ball and the close surrounding soil may be left comparatively untouched if the water is poured on rapidly, but if one-third is applied, then a neighbouring plant receives another portion and a third the remainder. The water is thus allowed time to soak slowly through the soil, when the process is repeated until each receives the necessary quantity. It takes some little experience too just to know how much will be sufficient for a particular plant, as an insufficient supply is inoperative, and a superabundance is wasteful. An experienced hand also understands the great saving of labour it is to return to the watering before moisture is greatly needed. Water applied in time quickly finds its way throughout the part to be moistened, and, as a matter of course, in the latter case, the tree or shrub never suffers from dryness. The importance of guarding against newly transplanted shrubs becoming too dry cannot be over-estimated.

As to the disadvantage of watering shrubs, I know none when it is properly conducted except the time and labour involved when there are great numbers, and the water supply is far distant. It is certainly quite the opposite of hurtful to the plants watered, and if there does arise some little need on the part of the plant for continued artificial irrigation, that may be entirely obviated by mulching during autumn or at the end of summer with a thick coating of cut grass, or with soil or manure, as most convenient. By the next spring, except on particularly gravelly soil, the plants will need no further attention.

It may not be amiss to say that for some species of plants it is more necessary to keep the soil moist than for others. On dry soils Rhododendrons are very difficult to succeed with. The only way is to plant in plenty of leaf soil, keep this and the ball of the plant always moist, and mulch repeatedly with sound manure. But the keeping of the plant in a moist medium until well rooted is the main point to consider. Box needs plenty of water, so does Yew. Holly quickly makes itself at home, and all kinds of Laurel are quickly established. I have found the various Spruces most easy to establish, none more so than *Abies orientalis*. Of Silver Firs *Picea Nordmanniana* requires much attention, while *P. nobilis*, *P. lasiocarpa*, *P. pinsapo*, and others are easy to take hold. Retinosporas and Junipers mostly need little water, while the Deodar, the Mount Atlas Cedar, and Wellingtonia are among the most difficult to establish. But in each of these cases never allow the plants to feel real dryness, and mulchings are of extraordinary benefit.—B.

THE EDIBLE STACHYS.

HOWEVER much we have derived from Japan in the way of flowers, and rich indeed have been the introductions of late years which we have received both in flowering plants, the grand Lilies, Irises, and other plants, entitle the Japanese gardeners who have cultivated these things to our profoundest gratitude, we cannot say the same with regard to vegetables. Some years ago we were told of a wonderful Radish, which was to beat anything of the kind, to be had in winter, and all sorts of good merits ascribed to it. Well, it came. The seeds were sold at a high price (for such things); people tried to fancy there was something in it, but it very soon disappeared, and its name is never mentioned now. Three years ago, I think it was, we had another announcement of a remarkable new vegetable. The announcement came from Paris, and Messrs. Vilmorin, Andrieux & Co. gave it the name of *Crosnes de Japon*. It has over here been called Spirals, Japanese Arti-

choke, and *Stachys*, while I observed in your columns the very ridiculous name of Winter Whitebait given to it. I remember once dining in London, the menu was on the table, and under the head of fish was written Winter Whitebait. Most of us at the table selected the little fish—i.e., the veritable Simon Pure—and wondered what its hybernal namesake could be. When it came on the table to our intense disgust it proved to be—sprats! but after all it was fish. What would have been our feelings if instead of the sprats we had found a dish of *Stachys* I cannot presume to say.

Let me detail my experience in this matter. When I saw it announced I wrote to Messrs. Vilmorin and obtained a small supply. These multiplied very rapidly, and we cooked some of them. They were treated somewhat in the way that Salsafy is sometimes cooked—that is, prepared with bread and milk, pepper and salt, and escaloped. We could not detect any particular flavour in them, but thought it might be our own fault, so I determined to grow them for another year. I made a row of them, planting them about a foot apart, and planting two roots together. The result of it was a very large crop of the queer looking roots, reminding one of the larvæ of some species of ants or bees.

Seeing that they were for sale in the Paris markets I thought surely if anything can be done with them the French *chefs* have found it out, so I wrote to my friend, M. Henry de Vilmorin; with that courtesy which always distinguishes him (but which I feel bound to say is not characteristic of all Parisians) he very obligingly took steps to ascertain what was best to do with them. I was advised to try them boiled, and I did; I boiled them, I ate them raw (as one would eat a Radish), but all were a failure. Mons. de Vilmorin then told me that the introducer had said that their great merit was that they had no flavour whatever, and that consequently they would take any that might be given them! This was conclusive, and it was quite true when fried you could only taste the fat in which they were done. Their fate has been sealed; they will follow the Radish, and be no more seen in my garden, but of that, by-the-by, I am not quite sure; they are a perfect weed, and I fear it will be some time before I can get rid of it.

It is somewhat remarkable that while the world has been ransacked for new productions in the vegetable kingdom, while glorious flowers, and beautiful trees and shrubs have been added to our stores, next to nothing has been done in the way of vegetables. We are occupied in improving (?) the sorts which have been grown in our gardens for centuries, but it is rarely that we can welcome anything new in the way of a vegetable, and certainly we do not care for them if they are no better than *Raphanus caudatus* or *Stachys tuberifera*.—D., Deal.



DENDROBIUM BRYMERIANUM.

WE have been fairly successful with the above named *Dendrobium* this season, having had thirteen and fifteen blooms on a plant. To make it bloom satisfactorily it must have a thorough season of rest and be well ripened. The growth must be made in a high temperature and be well exposed to the sun when the growth is finished. When showing for bloom very little water is necessary, or the buds will turn to growths.

CATTLEYA LAWRENCEANA.

This is an excellent addition to the spring flowering *Cattleyas*. We have three good sized plants, two of which being of the ordinary small flowered variety and calling for no special comment, but the other was beautiful, the flowers being fully 6 inches in diameter, the sepals and petals being of a very deep rose and the lip a rich purple. This *Cattleya* requires more warmth and moisture than the usual occupants of the *Cattleya* house. I think many grow it in too cool a temperature.

CYPRIPEDIUM CAUDATUM.

The above *Cypripedium* is another Orchid which is usually grown in the peat and sphagnum mixture, but if growers would substitute good loam for the peat and apply plenty of moisture there would soon be an improvement and without dead ends to the foliage. The sepals of our plants usually grow from 35 to 37 inches long.

SOBRALIA MACRANTHA.

A week or two since I noticed a correspondent was recommending peat for the cultivation of this terrestrial Orchid, and to raise the potting material above the rim of the pot. Now according to my experience this is the wrong material, and also raising it above the rim of the pot. We pot ours in loam, leaf soil, and cowdung in equal parts, and place the crown quite an inch below the rim of the pot. A plant in a 6-inch pot two years since is now in a 14-inch pot, and the plant a yard through, and still growing vigorously. I think terrestrial Orchids, as a rule, are treated too much to the peat, sphagnum, and crock compost. All Orchids of the above class, such as the *Cymbidiums* and *Calanthe veratiformis*, thrive well under the same treatment.

LÆLIA MAJALIS.

We have several plants of the above *Lælia* showing for bloom well. The plants are hung up in the Rose house, and by their condition appear to like their position. All the Mexican *Lælias* and *Cattleya citrina* thrive under the same treatment.—A. YOUNG, *Abberley Gardens*.

ORCHIDS AT WADDESDON.

THE beautiful garden at Baron Rothschild's residence near Aylesbury has long been celebrated for its Orchids, but a specially fine display was provided on the occasion of the Queen's visit on Wednesday, May 14th. Her Majesty was presented by Mr. Sander with a bouquet composed of *Vanda teres* and a few spikes of *Odontoglossum Pescatorei* flowers, a unique and happy combination. Mr. F. Sander also conducted the Queen round the Orchid houses, explaining the characters and attractions of their principal occupants.

THE NAMING OF ORCHIDS FOR GARDEN PURPOSES.

THE Council of the Royal Horticultural Society have adopted the following rules:—

SECT. I.—GENERA, SPECIES, WELL-MARKED VARIETIES, AND NATURAL HYBRIDS.

1, The names of natural genera, species, and well-marked varieties, as well as of presumed wild hybrids, shall be written so as to accord with botanical language and usage, and to conform with the laws of botanical nomenclature (*Lois de la Nomenclature Botanique*) as adopted at the International Botanical Congress at Paris in 1867.

2, Exhibitors showing, for the first time, a plant under a Latin name, shall be required to furnish the name of the botanist who has described the plant.

SECT. II.—ARTIFICIAL HYBRIDS BETWEEN GENERA.

3, Every bigener shall receive a generic name in Latin formed by combining the names of the parent genera, and a specific name also in Latin, the sign of hybridity \times being always added.

SECT. III.—ARTIFICIAL HYBRIDS BETWEEN SPECIES.

4, Hybrids between species raised artificially shall be named in Latin, with the addition of the word *hybridus*, or of the sign of hybridity, \times . (See par. 1.)

SECT. IV.—ARTIFICIAL CROSSES BETWEEN VARIETIES.

5, Crosses between varieties raised artificially should receive suitable vernacular names.

SECT. V.—GENERAL RECOMMENDATIONS.

6, The Orchid Committee shall decline to recognise any unauthorised name, or any name that is deemed unsuitable, or is not applied in conformity with the preceding rules.

7, A name once authoritatively adopted shall not be altered, unless in case of material error.

8, An award may be made to any plant that is considered by the Committee worthy of such distinction, even though it be unnamed, or not named in accordance with the preceding regulations, provided that within a reasonable time, to be determined by the Committee, a proper name be given. Any award made under the circumstances shall be suspended until the plant has been properly named.

9, The operation of these rules shall be prospective, not retrospective.

10, The Council wishes to impress upon Orchid growers the desirability of obtaining drawings or photographs of all new and certificated Orchids, and of depositing such drawings in the Library of the Society for reference.

11, The Council also desires to remind cultivators of the great importance of preserving specimens for future reference and comparison, and suggests that, wherever practicable, specimens should

be sent for this purpose to the "Director of the Royal Gardens, Kew."

CÆLOGYNE PANDURATA.

Green flowers are rare, and when they do occur they are usually monstrosities, and devoid of any pretensions to beauty. Black is also exceedingly rare in flowers, and this renders the above named Orchid all the more remarkable, for it contains a combination of the two colours very strongly marked. The sepals and petals are a pure bright green, the lip also is green at the margin, but it has a black centre and veins of black in the lateral lobes also. The plant is of stout growth, and produces a long raceme bearing six or eight large flowers in well grown specimens. It is a native of Borneo, and has been repeatedly found flourishing on trees in damp situations.

Our illustration (fig. 62) was prepared from an example shown at one of the recent meetings of the Royal Horticultural Society. It is grown successfully at Kew, also in Baron Schröder's fine collection at The Dell. The plant requires the temperature of a



FIG. 62.—CÆLOGYNE PANDURATA.

Cattleya house, and a shaded position, succeeding well in a basket suspended from the roof.

TOMATO CULTURE.

[A paper read by Mr. J. Woodfield, at a meeting of the Walkley Floral and Horticultural Society, Sheffield.]

THE cultivation of the Tomato has lately received a large share of attention both in the horticultural and daily press, and the subject has been treated in such an exhaustive manner that it would seem nothing new remains to be said; but as I have been a cultivator of this delicious fruit for some years, and generally with a fair amount of success, a few details as to my method of treatment may be of interest. As the Tomato can only be grown out of doors with any advantage in the more southern counties, I will confine my remarks to its culture under glass. As far as my experience goes Tomato culture is not making very rapid strides among amateurs, for successful examples of culture seem to me to be the exception rather than the rule, and frequently the professional gardener's efforts are not rewarded with the best results.

In Tomato growing a good start wins half the battle. For very early supplies cuttings may be struck in the autumn and kept on a shelf near the glass, where they will have the advantage of every minute of daylight, and kept gently growing until the new year, when they may be transferred to 10-inch pots, and grown in a brisk heat. These afford ripe fruit in April. To follow these, seed may be sown in January, and the plants will produce ripe fruit by the end of May. But the main or summer crop is the one which chiefly concerns the

amateur cultivator, and for this seed should be sown by the end of February or beginning of March, and when only a few are required I should recommend sowing them singly in 3-inch pots—as many pots as there are plants required—or sown very thinly in 6-inch pots; and here I may say that I attach great importance to their sowing. I have seen some growers who, perhaps, only require a dozen or two of plants get a packet of seed and sow the whole lot in a small pot or pan; they come up like Mustard and Cress, and draw each other up with stems as fine as needles, and no matter how carefully they may be singled off numbers of them will damp off, and those which do survive never make strong, sturdy plants, which alone are capable of carrying a heavy crop of fruit.

The seed should be sown in light sandy compost, and placed on a gentle bottom heat until they have germinated; but as soon as the plants appear not a day must be lost before removing them to a shelf as near the glass as possible, where they may remain until they show the first rough leaf, when they must be potted off singly into 3-inch pots, burying the stem nearly up to the seed leaves, and replace as near the light as possible. For this potting a light free compost may be used, in which the roots will readily begin to work. In the course of a fortnight or three weeks the young plants should be ready for another shift, when they may be shifted into 6-inch pots, using a somewhat stronger compost—good fibrous loam, with a little leaf mould and sand, pressing it in rather firmly, and burying as much of the stem as possible. They should be placed in a good position near the glass, the object being to get them hard, the growth thoroughly solidified as well as sturdy. By the end of April or early in May they will have filled their pots with roots, and the first truss of bloom will be visible in the points of the plants. Do not allow them to become root-bound, or they will soon have a stunted and yellow appearance of the foliage, which will take them a long time to grow out of, but measures must at once be taken to place them in positions where they are intended to fruit, either in large pots, or planted out in borders, as the case may be.

In my own experience I have had the best results from pot culture, but where it is not possible to give them constant attention planting out will be the safest. For pot culture I find the 12-inch pot the most suitable size.

The soil used for this potting is one of the most important points in the culture of the Tomato, and it is one in which a large majority of cultivators make a great mistake, and that is making the soil too rich. The result is a very sappy and gross growth, predisposed to disease. Old soil, or soil that has been used before for the same crop, should be avoided, as also should all animal manure, for I have proved it to be the reverse of beneficial to these plants. The soil I use for the final potting is a poorish yellow fibrous loam, dug about 3 inches thick, and stacked about three or four months, or just long enough to kill the grass. This we chop up with a spade, but leave it rather lumpy, to every barrowful of which I add a 6-inch potful of bonemeal and a shovelful or two of wood ashes. Well mix it together, and it will be plenty rich enough either for pots or borders. In potting place three or four largish crocks in the bottom, then a little of the roughest material over them; place the plant well down in the pot, so as to get as much of the stem buried as possible. Press the soil very firmly in, using the potting stick or rammer, for that induces a short-jointed growth and a disposition to fruit. At this potting the pots should not be more than two-thirds filled, which leaves space for a rich top-dressing after the fruit is set. When potting is completed they should be at once placed in the position they are intended to permanently occupy; a good strong stake put to each plant, long enough to support them up to the wires or trellis they are to be trained upon.

If they are intended to be grown on the single stem or cordon system, all side growths should be pinched out as soon as they can be taken hold of, not allowing them to make strong growth, and then ruthlessly cut all off with a knife. Such treatment weakens the plant, and very frequently lays the foundation of disease in the stem. The plants show trusses of bloom when only about a foot from the rim of the pot, and about every second or third joint right away. In that way they go to the extent of about 6 feet up the roof, when the leader may be stopped, and all growths removed as fast as they appear. The foliage also should be kept comparatively thin by shortening the leaves gradually; the point or terminal leaflet may be pinched off when the leaf is quite young, and the leaf may be reduced about a third, or not more than half after the fruit is set and swelling.

During the flowering period a little trouble may be taken in fertilising the flowers. In the middle of the day, when the pollen is dry, a sharp rap on the trellis is perhaps the readiest means of dis-

tributing the pollen. Properly fertilised flowers invariably afford the best shaped and fullest crop of fruit. Watering is an operation which should be very carefully attended to, especially during the flowering time, and at no time do they require half the water that some think necessary for their well being. If the soil is kept rather dry, the atmosphere warm, but dry and buoyant, there is no danger of not having a good set of fruit. When water is required it should be applied in the morning, so that any which may be sloped about the house will be evaporated before the house is closed for the night, for a humid atmosphere is very detrimental to their well being. If planted out in a border a mulching will help to prevent evaporation, and if grown in pots the advantage is on the side of plunging; it will help to keep the soil in a nice intermediate condition without having recourse to such frequent waterings, for the less they have to be watered the better they will succeed, but at the same time the soil in which they are growing should never be absolutely destitute of moisture.

The Tomato has of late years been subject to many diseases, several large market growers, more especially in the Channel Islands, being obliged to give up their cultivation in consequence of its ravages. There would seem to be several forms of the Tomato disease, but the most to be dreaded is the destructive parasite or fungus known as the *Cladosporium Lycopersici*. This fungus causes the decay of the fruit. It begins with a minute black spot, which surrounds the small decaying style, gradually increasing in size by new circles of growth till at last the whole substance is blackened and destroyed. The Potato fungus, *Peronospora infestans*, sometimes attacks the plants, causing great destruction; but I think, with proper treatment, these diseases are in a great measure preventible. What is needed to guard against these diseases is a moderately warm and dry atmosphere. A liberal circulation of air on all favourable occasions promotes a firm sturdy growth, which is almost impervious to disease, while, on the contrary, plants which are given a loose rich soil with abundance of water both at the roots and in the atmosphere will produce a soft and sappy growth, too strong to insure their setting fruit freely, and very liable to fall an early prey to disease. If, however, the disease should unfortunately appear, after every precaution has been taken to prevent it, steps must be at once taken to prevent its spread, otherwise a whole houseful of plants will soon be ruined, for it soon communicates itself to healthy plants if the treatment is not changed and a remedy applied at once. It is surprising how quickly the whole tissues of the plant become diseased, and once it reaches this stage all remedies are hopeless; nothing then remains but to burn the plants, for they never by any chance do any more good; all new growth becomes diseased just when hopes are entertained of the plants recovering. The moment it shows itself all infected leaves, fruit, and any portion of the stem should be cut away and burnt and the plants well dusted with powdered sulphur; the hot-water pipes may also be painted over with sulphur. This will destroy the fungus and save the house of plants, other conditions being at once rendered favourable. Neglect for a few days may result in all the plants having to be destroyed.

Great fluctuation of temperature, or a long continued low temperature with an atmosphere nearly saturated with moisture, are both a fruitful cause of disease, but no fear of an attack from fungus need be anticipated if a pretty regular temperature of from 60° to 65° by night with a rise to 70° or 75° in the daytime be maintained, with abundant ventilation on all favourable occasions, exercising great care and judgment in watering, and using a very firm soil, which produces a growth of moderate strength, that is firm and short jointed; this is essential to success.

After a crop of fruit is set, and swelling the plants will require some stimulant to assist them in swelling the crop, and this is best supplied with surface dressing of artificials, and watered in, in preference to liquid manures, which at best are of only uncertain strength, and, with constant use, apt to sour the soil and destroy many roots. There are many kinds used, but my favourite is Standen's. A light sprinkling of this manure applied every ten days will give them all the support required to enable them to perfect a firm crop. Tomatoes have become very popular in the last few years, so popular, in fact, that the supply is not yet equal to the demand, and there is no reason why everybody with however small an amount of glass should not successfully grow good Tomatoes, provided he has properly prepared plants to start with. Many failures in Tomato culture may be attributed to planting thin lanky objects that have been drawn up in a strong heat, and much crowded. More fruit will be obtained from six sturdy short jointed plants than from two dozen such as I have described.

I have grown several varieties, some being far more prolific than others, but I accord the premier position to Blackwood Park Prolific. With me it sets freely and swells enormous crops of fruit, frequently twelve, fourteen and upwards of large fruit on a truss. In my house at the present time I have over a dozen set and swelling on many trusses. Sutton's Perfection is of fine quality, but not so free setting. There are many other good varieties, and most cultivators have their own favourite variety, but they will all well repay for any amount of attention.

AMONG THE CATERPILLARS.

UNDER the above heading you remarked in your last week's issue "It is simply impossible to exaggerate when the attack is virulent." Nothing could be truer, but the apathy generally of fruit growers is so great, that until they can no longer ignore the existence of the caterpillar they decline to believe in him. He is here now, and unbelief is impossible. In this district I and my gardener are regarded as mild, if harmless, lunatics, with caterpillar on the brain. Now it will be found that it is a severe attack of the pest on our pockets. Since my last of this day week we have continued the struggle without being able to say which side was gaining ground. Some of my trees have now been sprayed with Paris green ten times, and still we meet fresh batches of caterpillars. It is now nearly eight weeks since we noticed the first, and notwithstanding the immense numbers killed, I cannot feel sure of a crop of fruit. In fact, I should be inclined to think the task hopeless, but that the foliage is palpably improving. Clearing Plum trees seems comparatively easy, from the fact, I conclude, that we can with safety apply the Paris green of the strength of 1 oz. to 10 gallons of water, whereas some days only after applying that strength to Apples and Pears serious injury was apparent. I can now show all shades of colour, from healthy green to black. Caterpillars are here from the just-hatched stage to those in readiness to go into the ground to prepare for next year's attack. This may be seen in much more virulent form in a neighbour's orchard. It is a vain conceit to suppose that masses of bloom are any evidence of exemption from attack. Very often a caterpillar will be found in each bud in a truss. What can be done? Spray on.

I have tested another mixture with excellent results: 10 lbs. quassia chips and 7 lbs. Calvert's carbolic soap boiled together and mixed with 100 gallons of water, with about 5 ozs. of Paris green. This acts well against the aphid, which I find is present on the trees in large quantity. Lastly, I am guarding against the pests going into the ground by having the trees shaken, the men being followed by fowls, which prefer their new diet to corn. In a few days I expect there will be a huge outcry all over the infested districts, and it will be a question whether the attack now in its third year should not lead to the active interposition of the Board of Agriculture or the Royal Agricultural Society. Meanwhile I would suggest that the Fruit Growers' Association might arrange to award prizes for the best apparatus for spraying trees. At present I know of no machine which can make any pretensions to perfection.—C. LEE CAMPBELL, *Glewston Court*.

I DO not think any apology is needed in introducing the subject of caterpillars, as last season in many places with regard to the fruit crop they were practically masters of the situation. In our district at present the prospect is more hopeful, the trees are much healthier, and some varieties of Apples, such as King of the Pippins, Ribston Pippin, Worcester Pearmain, Hawthornden, Keswick Codlin, and some others, are flowering profusely and setting kindly. I notice a few caterpillars, which I trust will not be more than enough for the young chaffinches, The old maxim not to shout till you are out of the wood possibly holds good at the present time, but under any circumstances fruit and forest trees are much healthier this year than last at this season. I had our fruit trees twice syringed with diluted petroleum at their resting period, and when the winter moth was supposed to be active, which might have helped to make matters better, and I think the sharp wind frost in March must have destroyed some of them. It would be interesting and prove valuable to have recorded any successful methods of preserving the fruit crops from the caterpillar plague. The Board of Agriculture has published four recipes for destroying the pest. I mean to try the first, as it contains no poisonous substances—namely, the extract of 10 lbs. of quassia chips (boiled) and 7 lbs. softsoap in 100 gallons of water, to be applied with syringe.—R. MAHER, *Nattendon Court*.

I HAVE carefully tried quassia at various strengths, but cannot record a success on the caterpillars. Alum, at 2 ozs. to the pint of water, did not affect the pests in the least. Mr. Wise of Toddington also tried it, but he writes, "Caterpillars enjoy alum." I think this raises the question if it was the winter moth larvæ on which the quassia and alum have been a success. Mr. Campbell is going to write you on a good mixture—viz., 10 lbs. quassia, 7 lbs. of Calvert's carbolic soft-soap, and 5 ozs. Paris green to 100 gallons of water. This effectually settles aphid, and causes Paris green to adhere better to the foliage. We recommended it to the authorities at Toddington, and they are very pleased with it. I believe this will be our concoction for the future, it is answering so well. I shall try carbolic powder and Paris green to-morrow, as I think it ought to prove fatal to all insect life. I am

arriving at the same opinion as Mr. Wise—*i.e.*, that nothing will kill the enemy by contact. I dipped caterpillars in alum, and it did not harm them at all.—S. T. WRIGHT.

SKIMMIA FRAGRANS.

THE Skimmias are better known and more valued for their brightly coloured berries than for their flowers, yet though these are unattractive they possess one property—fragrance—that renders the plant a favourite in some establishments. In the Royal Horticultural Society's Gardens at Chiswick they are grown with Camellias, and early during the present spring they were loaded with dense trusses of small flowers, filling the air in the house with their powerful odour. The rich green foliage of the Skimmias is always an attraction; then we have their flowering



FIG. 63.—SKIMMIA FRAGRANS.

period, and later on a rich display of fruits, so that they can be fairly considered as useful in a more than ordinary degree.

GARDENING AT WEXHAM PARK.

ALLOW me to say a few words on the surroundings of this magnificent residence, the country seat of Sir Charles Pigott, Bart. It is situated in the county of Buckingham, about twenty miles from London. I have had the pleasure of inspecting the beautiful gardens and pleasure grounds. The latter have recently undergone extensive alterations. Large clumps of the choicest varieties of Rhododendrons have been planted, and new walks made; in fact, the grounds have been quite remodelled throughout. From the new portion of the lawn a very fine view is obtained across the country to a beautiful background of woods belonging to Sir Robert Harvey. Directly in front of the mansion stand two magnificent specimens of *Cedrus deodara*, one on each side, and in the centre a very fine old Cedar of Lebanon. Grouped behind these is a collection of Copper Beech and Horse Chestnut, the latter just coming into bloom, which forms a combination of colour not to be equalled at any other time of the year. One side of the lawn is bounded by a lake, the banks of which are tastefully planted with Pampas Grass and various other suitable plants. A spacious conservatory near the mansion is well furnished with Palms and Tree Ferns, including fine examples of *Kentia Fosteriana* and *Areca luteo-scens*, a large plant

of *Dicksonia antarctica*, and various others, surrounded with a mass of flowering plants of various kinds.

The kitchen garden is situated in close proximity to the house. One thing especially I noticed was Mr. Ford's method of edging the walks; instead of Box or tiles he has lines of the common Pink, which afford a wealth of flowers. The herbaceous borders were gay with various spring flowering plants, especially a very fine strain of seedling Pansies saved by the gardener. In the glass department two large houses have just been erected by Messrs. Foster & Pearson for large specimen plants. A span-roofed house was occupied with magnificent herbaceous *Calceolarias* arranged on each side, the plants averaging from 2 to 2½ feet in diameter; there were about a hundred of them. Mr. Ford certainly excels in the culture of these plants, as all will admit who had the pleasure of seeing his group at the last Crystal Palace Show, which gained the first prize. I heard some of our leading gardeners remark as they were viewing them, that such a clean and healthy collection had not been staged for many years. He also gained first prize with six specimen stove plants, all of them meritorious. *Cinerarias* are also favourites with Mr. Ford, and he gained the first prize for a collection of these on March 29th. In another large stove was a choice collection of plants of *Anthurium Veitchii* with magnificent leaves, *A. crystallinum*, and *A. Lowii*; also the comparatively new *Alocasia Sandersoniana*, which by its habit of growth appears likely to make a good exhibition plant. *Ixoras* are grown well, several of which were in bloom; *I. Williamsii*, *I. Fraseri*, and *I. Pilgrimi*, intermixed with *Begonia corallina*, produced a rich effect. In addition to these there were choice *Dracenas*, *Crotons*, and many other fine-foliage plants. There are about eighteen houses chiefly devoted to plants. They are systematically arranged so that each class of plant can receive its proper treatment and temperature. *Gloxinias* are grown by hundreds, and there is also a very fine collection of *Tuberous Begonias*, with which Mr. Ford generally gains several prizes at various summer shows.

In an adjoining house is a fine collection of *Azaleas*. A few of the best are *Reine des Roses*, about 4 feet in diameter; *Reine des Pays Bas*, 5 feet by 4 feet; a very fine pyramid plant of *Fielder's White*, *Bijou de Paris*, and a very fine plant of the old *Stella*. *Rhododendrons* are also largely grown, a very large specimen of *R. formosum*, about 6 feet by 4 feet, the picture of health; *Lady A. Fitzwilliam*, *Bedowii*, *Princess Alice*, and a very fine plant of *Countess of Haddington*. Adding to the beauty of this house were large plants of *Chorozema splendens*, which well deserves a place in a cool greenhouse. Another greenhouse attached to this was aglow with various flowering plants, comprising well grown examples of *Boronia serrulata*, and the sweet scented *Boronia megastigma*, the perfume of which completely filled the house. There were also several dozen well grown plants of *Mignonette* almost filling the centre stage. *Melons* are largely grown for dessert. Mr. Ford has been cutting good fruit some considerable time; *Golden Perfection* and *Reid's Scarlet Flesh* are the two principally grown. *Cucumbers* and *Tomatoes* are not forgotten, for houses are devoted to each, and good crops are advancing. *Grapes* are not extensively grown. The *Peach* house has a very fine crop. *Lady Pigott* being such a great lover of flowers gives the preference to them. It is a great pity many more do not take the same interest in their gardens as Her Ladyship does. Everything looks healthy and clean, nothing seems to be left undone.—J. GRANDFIELD.

ODONTOGLOSSUMS AND THEIR CULTIVATION.

[A paper read before the Birmingham Gardeners' Mutual Improvement Society at the Midland Institute by Mr. W. Stevens, Walton Grange Gardens, Stone, Staffordshire.]
(Continued from page 404.)

FROM what has been already said we gather a few ideas as to what are essential to the successful cultivation of *Odontoglossums*, and in practice we have found most of them amenable to cultivation. The plants must be grown in a suitable temperature, with plenty of atmospheric moisture and an abundance of air, but at the same time without draught and loaded with moisture. Next they want no great amount of heat and very little variation in temperature; also they must have a certain amount of shade to be grown successfully.

CULTIVATION.

We will now review their cultivation as carried out in our everyday practice, and we may as well start with imported plants obtained from a nursery. Having received the plants we examine them, and if there are any decayed pseudo-bulbs cut them out down to the sound rhizome, and smear the cut with dry pounded charcoal. This is important, as I have found some plants to bleed, and they are of course greatly weakened by the loss of sap. Trim the old roots, leaving enough to fasten the plant in the pot, place them on some slightly damp moss in a box, throw a sheet of paper over them, arrange them on a stage or somewhere safe from slugs, and examine them once a week. When showing fresh growth take them out and pot them, use some sound fibrous peat with all the dust out, give it a chop or two, add about half as much fresh-picked sphagnum and one-third of fine broken crocks to go through a quarter-inch riddle; mix all together, and nearly fill the pots with clean fresh crocks. Keep the plants from half to three-quarters of an inch above the rim of the pot, and pot firmly. Some advise keeping them from 1 to 2 inches above the pot, but I have never seen the necessity for it; the plant is certainly more likely to be knocked out of a pot

in handling. Place them in a close house, where the temperature will range from 53° to 60°, and keep plenty of moisture about them, and they will grow like weeds. Established plants require exactly the same treatment as to soil, with the exception that as they increase in size they should be given potting material in proportion, but in larger pieces, and they will need more air.

A word or two as to ventilation. Our chief house, facing north-east, has front ventilation by means of boxes about 2 feet long and 6 inches wide in the front wall, and opposite to the hot-water pipes, with a lid on the outside to open and shut, and the inside is covered with perforated zinc to keep vermin out. The ventilation at the top is by means of a narrow light, raised by a screw left inside. Then to begin with January. If cold but the wind is not strong the front ventilators will be open, say half an inch; but if mild, with wind from any other quarter than north or east, they are opened 2 or 3 inches. In February the same treatment will suffice, also in March; but at the beginning of the latter month, if the sun is very bright, the blinds will have to be used for an hour or two on bright days, with plenty of water thrown about the stages and paths. From April to September continue similar treatment, with plenty of front ventilation and water, and if on hot days the temperature rises very high open the outside doors, but not the top ventilators; the reason for this I will try to explain. In the early part of the season the air through the front ventilators rises amongst the plants laden with moisture, and if you open the top lights out goes the moisture with the air, at same time creating a draught. So we keep the top ventilators closed, turn off the heat if any has been required, and drop the blinds; but later in the season, when the weather is warm outside and we have any difficulty in keeping the temperature down, we open one of the outside doors, and it seems to suit the plants better than top ventilation. The rest of the year, from September to December, is when we use the top ventilation most. If we get, as we sometimes do at the end of September and the beginning of October, close hot moist weather ventilation top and bottom is required freely, for the moisture in the air outside would be carried through the front ventilators, and amongst the plants, and out at top, doing no harm, but tending to promote a drier atmosphere and a ripening of the growths.

Watering is the next consideration, and of equal importance to the preceding points. The general advice in works on *Orchid* growing as to treatment of *Odontoglossums* is never to let them get dry. That advice is only correct so far as it goes. I used to follow the above advice, till I found by experience (sad in some cases) that I was wrong, and I say now, Never water an *Odontoglossum* till it is dry during winter, and not until it is comparatively so in summer; in fact treat them as you would ordinary greenhouse plants as regards water at the roots. In winter we never water a plant till it actually wants it. We examine them every day, and water the dry ones only, and so on throughout the year, with this difference that perhaps a plant may not want it for a week or more in winter, and in summer they might want it every day for weeks at a time if the weather is hot and dry, but from October to Christmas very little will be required.

The temperature of the water is next to be considered, and if there is, as there ought to be, a large tank in the house to catch the rain water nothing can be better, as it will be of the right temperature; but if unfortunately you have to use pipe water have a tub or tank large enough for a day's supply, and let it stand the twenty-four hours full before using. Do not use pump water if it can possibly be avoided, for it not only kills the moss but the plants do not thrive; they seem to become encrusted with a coating of lime which kills the roots. A caution, never use water out of the hot water pipes to warm that to be supplied to the plants. One winter we had plants that lost the tips of their leaves, and could not make it out. They kept dying back till they looked as if they had been clipped with the hedge shears, caused by our constantly cutting the dead parts off. I attributed this to the stage being close, and not enough air circulating between the plants. So I cleared everything in the shape of slates, &c., off, and put them on the open trellising, but they still lost their leaves. I thought then it must be the use of warm water out of the pipes. We tried without, and we have never lost leaves in the same way since, and we have used water after cold rain or snow at 40°, but it is as well to let the watering stand over for an hour or two till it has gained a little warmth. Do not water the plants while the house is cold. If the temperature has fallen very much in the night let it rise a degree or two before placing water about.

With regard to shading. A few years ago there was a great outcry about shading plants, and *Orchids* in particular, some people advocating no shading at all and others the reverse; but whatever the result with the warm *Orchids* does not concern us here, but cool *Orchids* must have shade. With others I tried thinner shading, but the results were not satisfactory, and we returned to our rather thick scrim or Hessian canvas. We also apply a thin shade to the glass of flour and water, which remains on all the summer, and in wet weather is almost transparent. By doing this there is less danger of the plants being burnt, and it often avoids the need for drawing down the blinds. Our blinds are supported on strips or a sort of framework, about 6 inches above the glass, and it is a great help in keeping the heat down in hot sunny weather. I think we have now gone over most of the ground in regard to the cultivation of the cool *Orchids*, and of which *Odontoglossum crispum* and *O. Pescatorei* may be taken as the type.

I will name a few that require a little variation in the above treatment, and will take them as they occur to me, not adopting any alphabetical order. *Odontoglossum crispum*, *Pescatorei*, *Andersonianum*, *triumphans*, *tripudians*, and all the hybrids belonging to them need the

treatment described. *O. cirrhosum* likes the warmest end of house. *O. nævium majus* also likes a snug corner. *O. blandum* is rather troublesome to many cultivators. I have never had any difficulty with it, by keeping it quite cool, close to the glass, and always saturated, winter and summer, and in this I am quite in accord with the Messrs. Veitch, who say in their Manual, "It occurs at an elevation of 5500 to 6500 feet, growing chiefly on the moss-covered stems of Melastomaceous trees, which, owing to the moisture of the climate, are constantly wet, and where the plants flower all the year round."

O. Edwardi I had some trouble with till I found a spot to suit it just over the pipes where they enter the cool house, and where there is always a little warmth rising and air at the same time. *O. Pardinum* is something like a yellow cirrhosum, and very pretty, but I have never been able to grow it satisfactorily, but it does best in the coldest house. *O. coronarium* is rather difficult to manage satisfactorily. I have flowered one plant twice in five years, and I suppose I must be satisfied. I grow it in a long basket of moss and crocks at the top of a cool house not far from the ventilators, and it grows well. I once flowered it in the autumn by taking it into the Cattleya house to finish its growth before winter, and it sent up a fine spike. I tried the plan again, but did not succeed. It is found at an altitude from 8000 to 9000 feet, and should be grown quite cool.

O. citrosimum should be grown in baskets in a shady part of the Mexican house. It will stand plenty of heat while growing, and may be kept rather dry in a cool house during winter. This plant was first introduced into England by Mr. G. Barker of Birmingham, through his collector, Ross, about the year 1838. *O. biconensis* does very well at the warm end of a cool house, or even in a shady corner of the Mexican house if rested cool. *O. Cervantesi* and its varieties grow and flower finely on a shelf close to the glass. I keep them wet all the year round, if a shelf is not available use shallow pans or baskets, as they must have a free circulation of air. *O. Rossi majus* and *Erstedii* require the same treatment. *O. cordatum*, and *O. maculatum* both succeed well at the warmest end of the cool house, or the cool end of the Mexican house if shaded.

O. grande requires special treatment to ensure its success. I grow mine on a shelf at the top of a Mexican house, where they seem to like the heat and air, shaded of course. I just whiten the glass with flour and water, and after they have flowered and finished growth keep them somewhat dry for a month or two. I place mine in a vinery in which Grapes are hanging through the winter, and they are doing first-rate. I had two spikes on many of the pseudo-bulbs last autumn. *O. Schlipperanum*, although similar in growth to *O. grande*, requires different treatment. *O. grande* flowers from the current season's growth just as it is finishing its pseudo-bulbs, whereas *O. Schlipperanum* flowers in summer from the pseudo-bulb made the previous year, and as it sometimes flowers late in the season it wants extra help to mature its growth. After flowering I place mine in a shady part of the stove, and as the autumn comes on give it less shade. By this means I secure fine plump pseudo-bulbs that flower well. *O. Insleyi*, another Orchid, first imported into Birmingham by Mr. Barker in 1838 or 1839, requires similar treatment to *O. grande*, but will stand cooler treatment. I have done it well in the cool house in pans at the top of the house. *O. Halli* is a grand species, and does well with cool treatment, but takes rather long time to become thoroughly established.

O. Harryanum, although a robust growing species, needs a special corner. It seems to me to require the warmest end of a cool house, and one that is rather close, as it evidently does not like a draught or cold air blowing on it. The leaves soon tell tales if it does. I have tried mine all over the place, and they are doing very well in one end of a low pit where the heat enters, and we do not open the ventilators close to them. *O. hastilabium* does well with the same treatment; also *O. vexillarium*, or *Miltonia vexillaria* as it is now called. *O. Polyanthum* does well with the cool *Odontoglossums*, but requires looking after to keep it in health; the least thing seems to upset it, its constitution not being over-strong. *O. Erstedii* should be grown in a basket or pan close to the glass, with plenty of water. *O. Roezli* requires a close moist atmosphere. I have found it do best with *Phalænopsis*. *O. Phalænopsis* I used to grow in a Cattleya house in winter, and at the warm end of a cool house in summer.

Insect pests are numerous, and the cultivator who would be successful must always keep them in check. The worst pest for cool Orchids is without a doubt yellow thrips, and I have been more successful in keeping them under by the use of dry flowers of sulphur dusted on the young growths with a small brush than anything else. In potting or cleaning the man always has a box of sulphur handy, and if there is any sign of thrips it at once has a dusting, with the certainty of being killed.

Green fly is easily kept under by fumigation. I always use common tobacco paper, and keep a stock on hand, so that the oil may evaporate before use, and not being so liable to flare. I also never use coke or charcoal to light the tobacco paper, but a piece of brown paper, and by following the directions indicated there will seldom be any plants injured by fumigation. Slugs are a pest in some places, and the best plan is to look after them by lantern light. Mice are apt to be troublesome sometimes. I once had some *Masdevallias* much injured by them.

After the reading of the above paper there was a short discussion on various subjects touched on in the paper—i.e., on using sulphur for thrips, the Chairman preferring tobacco water and softsoap, and dipping

all the plants once a fortnight, but it was pointed out the great labour involved in going over a collection of 5000 or 6000 plants.

ROYAL HORTICULTURAL SOCIETY.

SCIENTIFIC COMMITTEE.—Present: Mr. Morris in the chair; Mr. McLachlan, Mr. Michael, Rev. W. Wilks, Dr. Scott, Mr. Wilson, Dr. Müller, and Rev. G. Henslow, Hon. Secretary.

Plant bug (Lygus pabulinus, L.).—Mr. McLachlan exhibited specimens of a small green bug, which has become very troublesome in the temperate house at Kew. It attacks Fuchsias, Rhododendrons, Camellias, &c. It has been observed for the last ten years. Paris green or London purple (arsenical preparations) were suggested as the best remedies, fumigating being difficult in so large a place.

Ceratitis citriperda (McLeay, 1829).—Mr. Henslow gave some account of the orange fly, which has become very troublesome in Malta. He also exhibited specimens of the grubs, pupæ, and insects. It first appeared about fifteen years ago, but has increased to a very injurious extent during the last three years. A committee was appointed in 1889 by H.E., the late Governor of Malta, who have just issued their report (which will be published shortly in the "Kew Bulletin"). The fly perforates the half-ripe orange, and lays several eggs within it. This causes the fruit to fall prematurely. The larva finally escapes, and enters the ground to pass into the pupa stage. It is suggested that preventive measures should be taken at this period, first by collecting all fruits attacked, and mashing them up with water in a tank. Secondly, the surface of the ground should be sprinkled with a mixture of one part of sulphate of iron, finely powdered, to twenty-four parts of dry earth or sand, and subsequently slightly watered. An account of this insect (under the name *Ceratitis capitata*) will be found in the *Gardeners' Chronicle* of 1848, page 604, at which period it caused great damage to Oranges received from St. Michaels. In Malta it particularly attacks the Mandarine (*Citrus nobilis*). Cold and inclement weather is very unfavourable to the fly, which becomes much more abundant in a hot dry season.

Cerambyx miles, L.—Mr. Henslow showed specimens of Pear roots bored by this longicorn beetle; also the grubs and insects from Malta, where it is causing great damage to many fruit trees. The only remedy suggested was the well known one of spearing. In Malta, however, the beetles attack the roots rather than the stems, so that the difficulty of reaching them is greatly increased, as the only sign of their presence may be a feebleness in the upper part of the tree, and the branches decaying, when the tree may be already past recovery. The greatest difficulty, however, is to overcome the apathy of the cultivators themselves. It is not British, but common in the Mediterranean region.

Delphinium diseased.—Some leaves were sent by Mr. Haywood of Reigate, apparently attacked by a fungus. They were forwarded to Professor M. Ward for examination and report.

Primula metamorphosed.—Mr. A. Dean sent a number of seedlings of the "Jack in the Green" form of *Primula*. In this variety the calyx is foliaceous. Of the seedlings some had assumed the "hose-in-hose" type, the calyx becoming petaloid; in others the calyx had become polysepalous, the sepals varying from the foliaceous to a setiform condition.

Primroses and Bluebells degenerating.—Mr. Henslow showed specimens grown in his garden. They were received some years ago from Wiltshire, but have degenerated on the gravelly soil of Ealing. The Bluebells become pink, then white, at the same time changing in shape from the normal cylindrical to a cup-shaped perianth. This latter form is recognised as a permanent one—viz., var. *campanulata*, of which there is a bed at Kew. Transitional stages are not uncommon. The Primroses exhibited were taken from a number of separate plants of the long-styled form; but they had nearly all assumed a homomorphic character, by the pistil being dwarfed in length, and so bringing the stigma down to the level of the anthers.

Plants exhibited.—Mr. R. I. Lynch sent an interesting series from the Botanic Gardens, Cambridge. *Nevinsa alabamensis, A. Gray*, a curious apetalous ally of *Rhodotypos*. It has foliaceous sepals, and three or four carpels only. *Baccharis patagonica*, a shrubby composite, with flowers not unlike that of *Groundsel*; the florets, however, are female only, with a rudimentary corolla tightly fitting the style, and having no border. *Triosteum pinnatifidum, Maxim.*; *Aristolochia ringens, Vahl.*; *Vanda alpina*, a species not included in catalogues; *Arisarum proboscidium* ("Bot. Mag.," No. 6634), from the shaded woods of Upper Arno and Appenines, a very rare plant; *Asarum Hookeri, var. insignis, Duch.*, the rarest species in cultivation. A vote of thanks was unanimously accorded to Mr. Lynch.

ROYAL AQUARIUM, WESTMINSTER.

MAY 21ST AND 22ND.

THE early summer Exhibition at the Royal Aquarium on the above dates was one of the most attractive that has been held in the large building at Westminster for a considerable time. The groups were very good, and the Roses, Calceolarias, Azaleas, and cut flowers formed a rich display. The plants were arranged with considerable taste, and the general effect of the Show was highly pleasing. Some of the principal awards are referred to herewith. Three groups were in competition for the handsome prizes offered, the first of which went to Messrs.

J. Laing & Sons of Forest Hill, Mr. H. James, Castle Nursery, West Norwood, being second. Ferns were shown fairly well by Mr. James, and Mr. G. Collins, gardener to G. Anderson Rose, Esq., Wandsworth Common, had some small but fresh clean plants. The class for Caladiums brought out some of the well-known specimens of Messrs. J. Laing & Sons, which have been so much admired at many important shows. Azaleas (eight plants) were best shown by Mr. James. The finest specimens were Magnet and Iveryana, a large plant of Magnifica not being thoroughly furnished. Mr. C. Turner, Royal Nurseries, Slough, was second.

Gloxinias, Calceolarias, and Spiræas were not extensively shown, but they formed very attractive features nevertheless. The Society's prizes for twelve of the former were won by Messrs. Nunn and G. Collins. Mr. J. Lambert, gardener to H. W. Segelecke, Esq., Herne Hill, won with six; some of his plants were packed with blooms, one having about fifty. Messrs. Sutton & Sons offered prizes for plants of their well-known strain. Mr. Nunn was the only competitor, but he well deserved the first prize awarded to him, the plants being finely grown, and the merits of the strain were evident from the high quality of the flowers. Twelve herbaceous Calceolarias were asked for in Class 10, and Mr. J. Mursell, gardener to Mrs. Burton, Streatham, was placed first. Mr. Guyett, gardener to J. Gabriel, Esq., Streatham, won with six, these showing improvement in the quality of the flowers. Mr. W. Morle, 283, Regent Street, London, W., had some fair Spiræas, and Mr. Sullivan, gardener to D. B. Chapman, Esq., Roehampton, won with table plants.

The Pelargonium prizes were left to Mr. Turner. He was the only exhibitor of show and decorative plants or fancies, but his specimens formed a feature in themselves, and the first prize was awarded in each case.

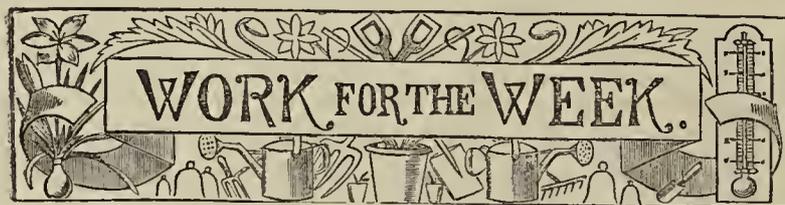
Pansies and Violas, cut and in pots, formed one of the most beautiful displays in the Show, these sweet and popular flowers being extensively exhibited. The best twelve pots of show varieties came from Mr. R. Dean, Ranelagh Road, Ealing, and the best Fancies from Mr. F. Hooper, Vine Nurseries, Widcombe Hill, Bath. These were a beautiful lot of plants, the quality of the flowers being excellent. Violas in pots were a delightfully fresh and fragrant display. Messrs. G. Paul and Son, The Old Nurseries, Cheshunt, had a splendid collection. Mr. Hooper was first with twelve bunches of cut Pansies, and Messrs. G. Paul & Son with Violas. A beautiful collection of Pansies, not for competition, was shown by Messrs. Ryder & Son, Sale, Manchester.

Roses were not exhibited in the class provided for them, but this was more than compensated for by the magnificent display arranged by Messrs. W. Paul & Son of Waltham Cross.

Cut flowers were a large and rich display. The prizes for groups of hardy flowers arranged for effect brought three beautiful collections from Messrs. Ware, Tottenham; G. Paul & Son, Cheshunt; and Barr and Son, King Street, Covent Garden, who were first, second, and third in the order of their names. Cut stove and greenhouse flowers were best shown by Messrs. Gibson, gardener to J. K. B. Atkins, Esq., Sevenoaks; and J. Nicholson, gardener to W. Melles, Esq., Cbvingford.

Vases and epergnes were fairly good, bouquets beautiful. Examples of the latter from Messrs. Perkins & Sons of Coventry were the perfection of tasteful arrangement.

Mr. F. Hooper was awarded a first-class certificate for a large double white "perpetual or winter-flowering" Pink named Her Majesty, which ought to prove very useful.



FRUIT FORCING.

FIGS—Early Forced Trees in Pots.—When all the fruit has been gathered from trees of the small early varieties, such as Early Violet, remove the loose portion of previous mulchings, and supply well decomposed manure, which will encourage root action and assist the trees to perfect the second crop. Other trees when the fruit is gathered must be treated in a similar manner. If the trees have become infested with red spider or scale thoroughly cleanse them by means of a soft soap solution, two ounces to a gallon of water, applied with a soft brush or sponge, and syringe them twice a day. In order to destroy the scale it must be dislodged. Although a second crop is serviceable a good first crop is much more valuable, therefore be content with a moderate second crop, or none at all if the trees have been severely taxed by a heavy first crop, as they must have vigour to give a full crop when forced early year after year; therefore give them a chance to make and perfect growth.

VINES.—Houses of Ripe Grapes.—Afford fire heat only to prevent the temperature falling below 60°, and to admit of a rather free circulation of air. Do not allow the border to become dry, at least not very dry, but keep it moist and mulch with rather dry litter from which the dung has been removed; it will retain moisture a long time, and lessen the evaporation from the surface of the border, though a little moisture in the air is not injurious to the Grapes, and is highly beneficial to the foliage, which must be kept clean and healthy. Fumigation must be

resorted to if thrips appear; for red spider there is no safer remedy than carefully sponging the leaves with soapy water. A double thickness of berring nets should be placed over the roof lights where Hamburgs are hanging in order to enable them to keep colour.

Temperature.—Bright weather greatly improves the condition of Vine foliage, especially where due attention is given to the ventilation. Employ as little fire heat as possible, for with sun heat and plenty of atmospheric moisture more real benefit is gained in a week than in a month of dull weather with the aid of fires. With Vines in full growth the temperature may be allowed to rise to 90° or 95°, closing the house at 85°, employing fire heat only to maintain a temperature of 70° to 75°, and to prevent its falling below 60° to 65° at night. These remarks apply only to Vines in full growth, as those with the Grapes approaching ripening should have a rather free circulation of air, those well advanced in ripening being kept cooler and drier. Admit air very early in the morning, as the sun's rays act powerfully on the condensed moisture formed on the foliage during the night, causing scorching, unless air has been previously admitted.

Training, Stopping, &c.—The growths must be trained in as they advance. Every precaution should be taken to secure the full and complete formation and development of the principal leaves—indeed all foliage must be exposed to light and air, therefore encourage no more foliage or growth than will secure an equal spread, every leaf having a full and free exposure to the sun. Cleanliness is essential, therefore insect pests must be combated on their first appearance. A few leaves infested with red spider are soon cleansed with a syringe and soapy water, but the work of cleansing a house is another affair, and procrastination mostly results in berries of the ruby instead of the sloe colour. Stop the shoots at every increase of growth, not allowing them to be a yard long, and then cut them back to joint, a barrow being required to clear the trimmings away, but there should be no more from a large house than the operator can remove in his apron.

Watering.—Routine is excellent; attention to details is the foundation of success. It is usual to supply water to Vines at stated intervals—viz., to render the border thoroughly moist when starting the Vines, when the Grapes attain thinning size, and when they are commencing to colour. Those are very good rules as regards watering with a view to feeding, and ought to be attended to, but inside borders must be watered more frequently. There are more failures from an insufficiency of water at the roots of Vines than from overwatering if the borders are properly constructed and the drainage complete. Time will depend upon the state of the Vines and the rooting area. Twice a week after the Vines are in full foliage may not be too much for those in narrow borders. It would drown those that have a large rooting area; but we may safely put it that Vines in a fairly sized border fully occupied with roots will require water once a week. Vines in strong loam only require half the water of those in a sieve-like border of sandy loam. Therefore all cultivators must be guided by circumstances. Some soils—i.e., loams, are naturally very loose, and they have the usual opening materials added or lime rubbish and charcoal, which makes them still more sieve-like. The consequence is water is more frequently needed, besides the danger of attending the finish of Grapes grown on such soil through insufficient supplies of water leading to attacks of red spider and thin foliage, which does not store nearly so much assimilated matter as the thick and leathery leaves on Vines in a firm soil of a rather retentive nature. Such soil will require water less frequently, but in no case must there be lack of moisture at the roots throughout the swelling period.

Late Vines.—These are in flower. Maintain a minimum temperature of 70°. Shaking the rods twice a day will be sufficient in most cases to distribute the pollen effectually, but in the case of shy setters fail not to resort to artificial impregnation, examining the bunches carefully with a camel's hair brush. All the large berried varieties, such as Gros Colman, Gros Guillaume, &c., which are good setters, should be thinned whilst they are in flower, and with those that are liable to have closely set berries it is a good plan to thin them before the flowers expand; a practised eye can tell which flower buds are likely to set, and the removal of the weaker strengthens them wonderfully. Whilst the Vines are in flower do not pinch or stop the laterals, but when the blooms are fairly set remove the laterals at once to prevent crowding.

Planting Young Vines in Growth.—Those struck from eyes in February or March and grown in pots or turves may from now to the early part of June be planted out, giving them a good soaking with water at 90° to 100°, mulching the surface with a couple of inches of short, rather lumpy manure. A humid atmosphere should be maintained, and shade afforded from bright sun until they become established.

KITCHEN GARDEN.

The weather of late has been greatly in favour of vegetables, and crops rarely appeared more promising, but they must not be neglected, as it is by giving attention to them during growth that they develop their fullest qualities.

EARTHING UP CROPS.—If Cauliflower, Cabbage, or any crop that produces a clear stem is allowed to grow on the level ground, many of the plants will fall over before they have gained maturity, but when the soil is drawn up on each side they are held firm. We earth up Peas, Broad Beans, Cabbage, Cauliflower, and other crops evidently to their advantage.

THINNING YOUNG VEGETABLES.—If Carrots, Parsnips, and such like plants are allowed to grow without thinning, they cannot be satisfactory. Neglecting to thin is a great evil, and deferring it is almost as

bad, as when once the plants have been drawn up by excessive crowding, they will never attain the excellency they would have done if they had been properly thinned from the first.

TRANSPLANTING.—It is a great mistake to allow Cauliflower, Brussels Sprouts, Lettuce, &c., to remain too long in the seed beds. There is little use in waiting for all the plants being ready for transplanting, and the work should be done at intervals as the plants become large enough. When the soil is dry at planting time we still approve of the old-fashioned plan of dipping the roots in a paint like mixture of clay, soot, and lime. This is also a good plan to follow before planting in soil where grubs exist.

SEAKALE FLOWERING.—The roots which were not transplanted in winter are forward in their growth. Many of their shoots show signs of flowering, but this should not be allowed, and every flower must be removed before it opens.

FRENCH BEANS.—In case of failure with the first crops sow more seed everywhere, and in districts where early sowing cannot be practised a sowing may now be safely made, as it will be June before the plants appear above the ground, and there will be little danger of their failing then. If early produce is desired, let them have a warm sheltered position. We rarely sow seed of dwarf varieties after May, but depend on the runner Beans from the end of July onwards. In small gardens, however, where runner Beans shade many of the other crops the dwarfs are best. One of the most productive ways of growing runner Beans for a small supply is to sow them in groups. A dozen plants in a circle will produce as many pods as three times that number in a row. In a garden where prizetaking Runners have been produced for many years they have grown on this system.

TURNIPS.—These are amongst the most difficult of crops to secure early. They are difficult to force and only make slow progress until the middle of May at least. The plants from early sowings in March are apt to run to seed before producing good roots; but all seed sown after this time will produce remunerative crops, and such varieties as Snowball and Red Globe may be sown now. These will form roots in July, and although they may not run to seed they soon become hard and hot in flavour. They should, therefore, only be grown in small quantities at this time, and an additional sowing may be made once a fortnight. This will insure a supply of juicy tender bulbs in spite of heat or drought.

SPINACH.—The Prickly variety sown last autumn has been doing us excellent service until now. It was well gathered down during the winter, but in April it became quite luxuriant, but it has now become tough and flavourless, and as our spring sowings of the round seeded variety is now ready for gathering the old plantations are being cleared off. The spring sowings will be good for a month or so, then they will show an inclination to run to seed. This disposition will be displayed until the approach of autumn, and all who have to keep up a supply during the whole of the summer must sow the seed often in a rich cool soil. A north border is a good position for it after this time.

CELERY.—Our earliest plants are out in the trenches. They number about 500, and are planted in three rows in each trench. These will meet our demands from August to October, and as we do not approve of having Celery ready in September, that is not required until November, the second plants will not be placed out until June. They are very small now. They have only been transplanted from the seed boxes to a gentle hotbed, and under a frame, and all who wish to have good late supply may still sow seed. Sow it in a frame on the most gentle of hotbeds, or, failing this convenience, in the open ground.

PLANT HOUSES.

Primulas.—The earliest plants, if they have been carefully hardened, will now succeed in a cool house or frame. If kept too long in a close atmosphere they are drawn up weakly. These plants are easily checked, and therefore must be carefully hardened before removing them from a warm to a cool structure. It is a good plan when they are removed to cool frames to plunge the small pots amongst ashes or leaf mould. The plants delight in a cool base, and water is required less frequently. If possible select for them a position where they can enjoy abundance of light without having to shade them. Bright sunshine is detrimental. For late spring flowering a little more seed should be sown. These are excellent for flowering during April and May, and often give greater satisfaction than the plants raised from seed sown earlier.

Double Varieties.—Trim off the lower foliage, then turn the plants out of their pots, and remove their drainage. This allows them to drop lower into the pots, and will leave ample space for top-dressing with light sandy material. This should be slightly raised about the rim of the pots to the base of the leaves remaining. If the plants are removed to a shady position, where they can be kept close and moist, they will soon emit roots from the stem, and when well rooted each portion can be taken off and placed singly in small pots in a compost of loam, leaf mould, and sand. This is a more certain method of propagation than by cuttings. Small plants that are well established in 2-inch pots should be placed into 4-inch, and grown on for a time in an intermediate temperature.

Primula obconica.—When once these plants are fairly started and ready for 2-inch pots, they grow much more satisfactorily in cold shady frames than in close heated structures. This is probably one of the most useful conservatory plants that can be grown, and seed may still be sown and good plants raised for flowering next spring.

Cyclamen.—Plants that are well established in small pots may be transferred into others 2 inches larger. Use for a compost loam and leaf mould in nearly equal proportions, with the addition of sand. Keep the plants in an intermediate temperature, and be careful not to overshadow them. Those raised from seed sown some time ago may be placed singly in small pots and grown with the earlier batch of plants. Those that have flowered will do best in cold frames. They should not be allowed to become dry.

Chrysanthemums.—The whole of the early flowering section should be placed in their largest pots and a sheltered position found for them outside. It is a good plan to shade them on the north side with mats for a time until they take freely to the new soil and display signs of active growth. Cuttings may still be inserted of nearly all varieties, and good plants in 6 and 7-inch pots can be produced which will carry one good bloom, or three of moderate size.

Zonal Pelargoniums.—Do not grow them in too warm a house, but aim at a dwarf sturdy growth. It is a mistake to hurry those intended for autumn and winter flowering. Carefully harden those that were rooted early and place them in cold frames, so that they will be ready for placing outside by the time they need larger pots; 6-inch pots are very suitable. Cuttings may still be rooted. Place them singly in small pots, and when well rooted 4-inch pots will be suitable.

Lilium lancifolium.—Bulbs that have been started in the greenhouse will be better in cold frames where they can have a cool base and plenty of air. If aphides attack them dip the points of the plants in diluted tobacco water.



QUERIES AND ANSWERS.

FERTILE WORKERS.

I HAVE been troubled with what appears to be a queenless hive; there is, however, a fertile worker. It wintered well and was very active. The cold weather came on three weeks or more ago, and when I looked at the entrance I saw a great change, and I suspected there was no queen. I made an internal examination. I found a good deal of drone brood, no worker brood or worker eggs, but drone eggs in worker cells, two and three in one cell. Now when bees have been long without a queen do they give up all attempt to make a queen if they get eggs from them? There are a number of worker bees as well as drones. Will you tell me what you think is best to do? I am not disposed to weaken another hive by removing comb.—F. M. A.

[Your method of getting rid of the fertile worker seems to have been successful, although I have frequently failed by a similar process. Bees that have been long queenless are sometimes longer in beginning to raise a queen, but do not always refuse to do so; nevertheless, queens raised by aged and long queenless bees are often imperfect, but when a comb of brood contains eggs and larvæ, and is covered with young bees, good queens will be raised; but it is not commendable to weaken a stock at this season for that purpose, as it will be no good except to join to another hive, and young queens raised in the natural way are better. With such hives it is better to leave them alone and place a swarm on the combs. The experiment goes far to dispel the idea that bees can lay at will; before they can do so they must have been reared to it while in the larvæ state.]

LOUPER BEES.

"L. B." says he is losing a great many bees; they run about on the ground in great numbers, and are termed by old bee-keepers "loupers," a disease which attacks bees at this season, and asks the cause and the remedy. The cause is the weather, and the remedy is to discontinue artificial feeding and manipulations during spring. The cause of the bees being in a disabled state is their being stimulated to leave their hives, which they would not otherwise do if left alone, at a time when they cannot return with safety, falling victims to the cold of the ground. This is the result of indiscreet advice that causes loss amongst bees and loss to the bee-keepers given by inexperienced but perhaps zealous persons.

RENEWING QUEENS.

I have just bought two stocks, one hive of black bees, and the queen is somewhere under two years old; the other stock is of hybrid Carniolians, queen two years old next month. When should I have fresh queens, and how ought I to proceed? I would like to work one stock for swarms, and one for honey. I have had no experience. Should the queen for the hybrid stock be a Carniolian or a hybrid?—TYNE.

[You wish to work one stock for honey and one for swarms. It is unnecessary to sacrifice one stock to queen rearing alone, and

both may be worked for honey. Two-year-old queens, however, encourage swarming, but you may use the means to prevent it by storifying. Make a shallow case of a depth suitable to the strength of the stock and size of sections if these are what you wish. Have in the centre four bars of the same width as the brood frames, and four (two for each side) $1\frac{3}{4}$ inch broad, assuming the size of hive to be 14 inches inside; if wider, increase one or more of the relative sizes. This gives increased room for breeding purposes in the centre, with the likelihood that the outside bars or sections will be filled with pure comb. Over this place supers in the ordinary manner, and keep watch for a swarm issuing. The mode of fixing the sections to a top bar with fine nails will be found convenient.

The other hive should be allowed to swarm, putting the bees into a hive not too large, and super in a few days after swarming, or if the weather be favourable in one day; then after ten days divide the old stock into nuclei, say four, as that number will give less trouble than more weak ones. Probably if both hives were treated in this fashion they would give satisfaction.

I do not quite understand the last query. The proper definition of any race crossed by another variety, if Carniolian crossed with a Cyprian drone, should be Carniolian, Cyprianised hybrid being an improper term for crossing with the same species. I have assumed that you have frame hives.]

BEES IN A STRAW HIVE—WHEN TO TRANSFER.

I have to acknowledge the courtesy of your correspondent "Lanarkshire Bee-keeper" in replying to my questions relative to the Lanarkshire hive, and again I take the liberty of asking for his guidance regarding seven ordinary sized straw hives of aboriginal black bees which I want to abandon and transfer to six Lanarkshire hives. How and when can this be done, and is it possible during the manipulation to secure six young queens, which I should like to have to succeed the old ones before removing to the Heather? How is comb foundation fixed in the groove of frames, and how are bees admitted to the supers from the outer combs only? What kind of wood is best for making supers, and where can I procure it?—J. D. L., *Northumberland*.

[Let the bees swarm, or swarm them artificially, each into two divisions of the divisional hive. In ten days or thereabouts after the first swarms, second swarms will probably come. Hive these into the third division, reserving them for Heather work when strengthened from the first swarms and their brood, or they may be kept as stocks. The bees and young queens may be driven at the end of the twentieth day after the first swarm, and the contents utilised, the bees being placed into other divisions, or they may be returned to the hive they were taken from, and also kept as stocks. This system cannot be condemned as unprofitable, and shows the much abused straw hive to be a useful and profitable one after all when in combination with frame hives. The colonies having increased to three times the original number, or perhaps more, may be more than you wish, but you have material to build up strong stocks with for late honey gathering, and the first swarms are mostly profitable ones.]

FIXING FOUNDATION IN THE GROOVES.

After the foundation is cut to the proper size and fitted to the groove, having it always wide enough to receive the sheet without in any way flattening it, turn the frame on its top in the palm of your hand, holding it at a slight angle so that the thumb is brought into contact with the sheet, and pour melted wax from a smelter or a teaspoon at the highest end, allowing it to run the whole length of the frame. When set, turn, and repeat the process on the other side, and be sure the wax is hot, and keep the teaspoon amongst the wax when not pouring it.

Bees are admitted to the supers from the outer combs by having the spaces in the centre closed with slips of wood.

WOOD FOR SUPERS.

Yellow pine is the best wood for supers and hives, but it is expensive. Clean white pine, or any wood free from hard knots, answers the purpose, and may be had from any saw miller; one-eighth and five-sixteenths are the thicknesses required, and the price from $4\frac{1}{2}$ d. to 6d. per yard of 9 superficial feet. The neatness of nailed supers depends much upon the neatness of the sawing, and if tolerably free, wood need not be planed if well glass papered, having a piece of flat cork as a pad. When these are dovetailed they are more costly.

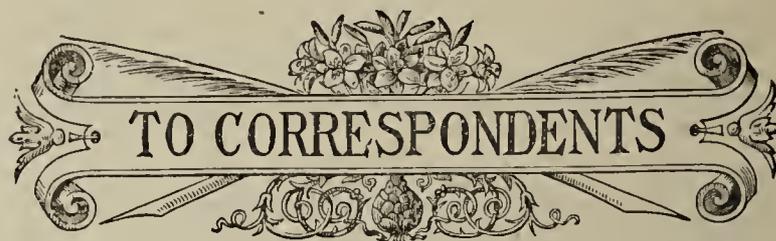
THE WEATHER.

This continues cold and boisterous between calms, and thunder is frequent. Bees have not had a full day's work since the 4th of the month, and I write on the 16th. They are, nevertheless, ready for supering, but according to precedent supering will not take

place before the middle of June, if even then, our honey season being between the 21st June and 21st July.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Stott Fertiliser and Distributor Company, Manchester.—*List of Distributors.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Tomato Houses (*J. Russel*).—We have forwarded your letter to our correspondent, who may perhaps be able to obtain the desired information. We have not seen the structures to which he referred.

Dicksonias (*Conservatory*).—A shaded position in a late vinery will be suitable. Canvas wrapped round the stems and kept moist facilitates growth. Only brief replies can be given to Wednesday morning's letters.

Dendrobium Falconeri (*J. W. S.*).—We fear the flowers you sent did not reach us as fresh as you anticipated, or they may have been old and flaccid when placed in the box. The variety is certainly not "bad," and had the flowers arrived fresh and bright we might possibly have been able to describe it as above the average in merit. A little fresh grass placed in boxes with flowers is excellent for keeping them fresh in transit, inserting the stems in small bits of Potatoes not always and alone sufficing. Your Phaius appears to be peculiar in its sportiveness.

Boussingaultia baselloides — **W. A. Richardson Rose** (*R. S. V. P.*).—This is a tuberous rooted plant from South America, and grows freely in a mixture of turfy loam, peat, and crushed charcoal in a light position in a cool stove or intermediate house, or even in a warm greenhouse. When you ask "if W. A. Richardson Rose should be treated the same as the Maréchal Niel when it has done flowering," we presume you allude to cutting the stems closely back for the production of young shoots. We see no reason why it should not answer thus pruned, though we have not tried it. If any of our readers have done so shall be glad to publish the results of their experience.

Judas Tree (*A. B.*).—The botanical name of this tree is *Cercis siliquastrum*, and bears racemes of rosy purple Pea-shaped flowers. In many gardens in the south of England it grows and flowers well as a standard, like the Laburnum, but in the north appears to require a wall. The flowers are esteemed by some as an addition in salads, from their agreeable piquancy. Old writers are in conflict in respect to the identity of the tree on which the traitorous disciple Judas hanged himself. Sir John Maundeville says that in his day there stood "the tree of Eldre that Judas hange himself upon for despeyr." Gerarde in his Herbal (1597) says "the Judas Tree is thought to be that whereon Judas hanged himself, and not upon the Elder tree, as is vulgarly said." This belief is held by the French and Italians.

Exhibiting Flowers (*A Subscriber*).—If you have cited correctly from the schedule, the terms "truss" and "bunch" are made synonymous by the committee. That being so you were properly disqualified, and the exhibitor of more than one truss of *Dendrobiums* ought to have been disqualified too. As the matter stands, according to your statement of the case, it is impossible that both decisions can be right, for one is in direct conflict with the other. The conditions in the schedule are distinctly ambiguous, because a bunch of flowers may consist of any number of separate trusses, and in some schedules it is properly stated that a specified number of trusses shall form a bunch. If more than one truss of Orchids were admissible, surely more than one of greenhouse *Rhododendrons* were admissible also, and we are entirely at a loss to account for the peculiar distinction that appears to have been made by the authorities.

Daisies on Lawns (*W. B. H.*).—There is no doubt about the value of household slops for applying to lawns; indeed, liquid manure

of almost any kind is beneficial. We have recently inspected a lawn that has been immensely improved by being watered with the diluted drainings from a manure heap. The presence of Daisies in lawns is nearly always indicative of poverty of soil. An excellent dressing is a mixture of superphosphate of lime and nitrate of soda, two-thirds of the former and one-third of the latter applied during showery weather at the rate of 2 ozs. per sward yard at intervals of a fortnight. If dry weather prevails it is a good plan to well water the lawn before applying the fertilisers, and then again afterwards to convey their virtues to the roots of the grass. Mixtures of guano and salt and soot and salt also act beneficially, so also do bonemeal and wood ashes. We mention these different ingredients in order that you may use what is the most convenient or readily obtainable. The most effectual mode of destroying Dandelions and Plantains is to drop a little sulphuric acid into the heart of each plant, as was recently recommended in these columns. Some persons have found lawn sand effectual in destroying Daisies.

Vines Scorched (R. J.).—The leaf sent is seriously scorched. The cause of this is the excessive transpiration of moisture from the foliage. Whenever this escapes more rapidly than it is supplied by the roots, first a slight flagging, then a shrivelling of the foliage follows. Vines growing so luxuriantly as yours appear to be doing need much water, often more than they receive; and you had better examine the border, and ascertain whether the soil is moist or not quite to the drainage. They also need great care in ventilation, especially in the gradual admission of air very early in the morning. Although you do not quite close the house at night, we fear you do not always admit more air sufficiently early, or that you allow the temperature of the house to rise too high at times, and then throw open the ventilators too wide to reduce it. The size of the leaf and its thinness of texture leads us to the conclusion we have arrived at. It is certainly not such an example as a free-growing Vine would produce under a judicious system of ventilation of opening the lights at intervals in advance of the increasing temperature, and preventing its reaching its maximum by a rush. If we are mistaken in our opinion, and if the Vines have had sufficient water, and there has been no mistake in ventilating the house, then the only thing that can be done to prevent the collapse of the foliage is to slightly shade the Vines when a bright day occurs after a term of dull weather. It is often necessary to do this, and frequently shading is resorted to just after the injury is done. A little hexagon netting suffices, or a slight sprinkling of limewash on the glass. Shading Vines is, generally speaking, a measure to be avoided as far as possible, but it is decidedly preferable to scorched leaves.

Primula sinensis (G. S.).—If these plants are required very large, with several crowns, the seed should be sown at once. Large plants with a number of crowns produce a greater display of bloom than plants confined to a single crown, although the flowers from the latter are generally superior in size. The seed should be sown on the surface of pans or pots filled with a compost of equal portions of loam, half-decayed leaf mould, and sand—the two former having been passed through a fine sieve. A little of the leaf mould should be scattered on the surface, and then the seed, but no soil over the seed. A good watering through a fine rose should be given, and the pot or pan covered with a square of glass, on which a little damp moss should be laid to exclude light. The seed will soon germinate in a temperature of 60°, when the glass must be gradually raised and the seedlings exposed to more light and air. Directly they will stand full exposure in the house they must be arranged close to the glass until they are large enough to be pricked off into other pots or pans. These must again be arranged close to the glass, and when well established they should gradually be removed to a lower temperature until they can be grown entirely under cool conditions. It is a good plan when pricking them off from the seed pot to give them sufficient room to grow and develop until they are large enough for 3-inch pots. By the time they are ready for this size they should be strong sturdy little plants, and almost ready for cool treatment. A frame on a gentle hotbed is suitable after potting, and the plants should be kept rather close and shaded for a week or ten days, or until they commence rooting into the new soil, when light and air are essential for sturdy growth. When these pots are well filled with roots repot them into 5 and 6-inch pots, which are large enough for growing extra sized plants in. A few, however, of the best and most promising that are placed in the small size may afterwards be transplanted to 7-inch pots. The pots should be drained moderately, and the soil pressed fairly firm into them. The small lower leaves of the plant each time they are potted should be removed and the collar of the plants well buried in the soil. It is a great mistake when potting to leave them loose at the collar, for they are not only subject to injury when being removed, but are more liable to damp off; in addition when potted deeply they root freely from the stem. They should be kept close as before until the roots are working freely, when they should be given abundance of air on all favourable occasions, gradually at first, and as the season advances the frame should be left open all night. Primulas require abundance of light, but at the same time must be shaded from the strong rays of the sun; plenty of air, and the plants arranged close to the glass, are the secrets of producing dwarf sturdy compact plants, which are essential for the production of abundance of fine bloom. Very careful watering in every stage of growth should be practised. The soil in which they are growing should never be allowed to become quite dry, and, on the other hand, should never be saturated. When the pots are full of roots weak stimulants may with advantage be given, or, better still, a little artificial manure applied to the surface, and the

plants watered every alternate watering with clear soot water. In autumn, when damp and cold compel the removal of the plants from the frame, they should occupy a light airy position close to the glass in the greenhouse. When wanted in flower they should be introduced into a structure where the night temperature can be maintained from 45° to 50°, when they will soon throw up their strong trusses of bloom. A suitable compost for these plants is three parts fibry loam, one part half-decayed leaf mould, one-seventh of cow manure that has been stacked and prepared for use, and sufficient coarse sand to keep the soil open and porous. Some of the finest Primulas we have seen were raised from seed sown in May.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (J. R.).—1, Phyllocactus Ackermanni; 2, A Saxifraga, perhaps C. ceratophylla, but specimen insufficient; 3, Bambusa Fortunei variegata; 4, Asplenium bulbiferum; 5, Dactylis glomerata variegata; 6, Phalaris arundinacea variegata. (J. Weaver).—The white flower is Prunus Padus, the other is Sparaxis tricolor. (R. J. II.).—Genista hispanica.

COVENT GARDEN MARKET.—MAY 21ST.

A GENERAL improvement in business, with supplies of all classes of goods heavy, and prices easier all round.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.	
Apples, ½ sieve	2	0	6	0	Melons, each	2	0	to	4	0
" Nova Scotia and	18	0	25	0	Oranges, per 100	4	0		9	0
" Canada, per barrel	15	0	20	0	Peaches, dozen	4	0		18	0
" Tasmanian, p. case	2	6	4	0	Red Currants, per ½ sieve	0	0		0	0
Grapes, per lb.	10	0	15	0	St. Michael Pines, each	2	0		6	0
Lemons, case					Strawberries, per lb.	1	6		6	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.	
Artichokes, dozen	0	0	to	0	Mushrooms, pnnnet	1	6	to	2	0
Asparagus, bundle	2	0		4	Mustard & Cress, pnnnet	0	2		0	0
Beans, Kidney, per lb.	1	6		0	Onions, bushel	3	0		4	0
Beet, Red, dozen	1	0		2	Parsley, dozen bunches	2	0		3	0
Brussels Sprouts, ½ sieve	0	0		0	Parsnips, dozen	1	0		0	0
Cabbage, dozen	1	6		0	Potatoes, per cwt.	3	0		4	0
Carrots, bunch	0	4		0	" New, per lb.	0	2		0	6
Cauliflowers, dozen	2	0		4	Rhubarb, bundle	0	2		0	0
Celery, bundle	1	0		3	Salsafy, bundle	1	0		1	6
Coleworts, doz. bunches	2	0		4	Scorzoneria, bundle	1	6		0	0
Cucumbers, doz.	2	0		3	Seakale, per bkt.	0	0		0	0
Endive, dozen	1	0		0	Shallots, per lb.	0	3		0	0
Herbs, bunch	0	2		0	Spinach, bushel	1	0		2	0
Leeks, bunch	0	2		0	Tomatoes, per lb.	1	0		1	6
Lettuce, dozen	0	9		1	Turnips, bunch	0	4		0	0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Anemone, dozen bunches	1	0	to	4	Mignonette, 12 bunches	2	0	to	4	0
Arum Lilies, 12 blooms	2	0		4	" Fr., large bunch	1	6		2	0
Azalea, dozen sprays	0	6		1	Narcissus, 12 bunches	2	0		6	0
Blue Bells, dozen bunches	1	0		2	Peony, dozen bunches	6	0		12	0
Bouvardias, bunch	0	6		1	Pansies, dozen bunches	1	0		2	0
Carnations, 12 blooms	1	0		2	Pelargoniums, 12 trusses	0	9		1	0
Cowslips, dozen bunches	0	6		1	" scarlet, 12 bnchs	4	0		6	0
Deutzia, per bunch	0	4		0	Primula (double) 12 sprays	1	0		1	6
Eucharis, dozen	4	0		6	" (single) 12 sprays	0	0		0	0
Forget-me-not, doz. bnch.	1	6		4	Ranunculus, doz. bunches	2	0		4	0
Gardenias, 12 blooms	2	0		4	Roses (indoor), dozen	0	6		1	6
Iris, various, dozen bnchs.	6	0		18	" Red, 12 blooms	2	0		4	0
Lapageria, 12 blooms	2	0		4	" Tea, white, dozen	1	0		3	0
Lilac (Eng.), doz. bunches	4	0		8	" Yellow	2	0		4	0
Lilium, various, 12 blms.	1	0		3	Spiraea, dozen bunches	6	0		9	0
" longiflorum, 12 blms.	3	0		6	Tuberose, 12 blooms	1	0		1	6
Lily of the Valley, dozen	0	6		1	Tulips (Eng.), doz. bnch.	2	0		4	0
sprays	0	6		1	Violets, French, per bunch	1	0		2	0
" dozen bunches	4	0		9	" Parme, per bunch	3	6		5	0
Marguerites, 12 bunches	2	0		6	Wallflowers, doz. bunches	2	0		4	0
Maidenhair Fern, dozen	4	0		9	White Lilac, French, per	4	0		5	0
bunches					bunch					

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.	
Aralia Sieboldi, dozen	6	0	to	12	Geraniums, Ivy, per doz.	5	0	to	9	0
Arum Lilies, per dozen	8	0		12	" Scarlet, per doz.	4	0		9	0
Arbor Vita (golden) doz.	6	0		4	Hyacinths, 12 pcts	0	0		0	0
Azalea, various, per dozen	18	0		30	Lily of the Valley, 12 pots	12	0		18	0
Calceolaria, per doz.	6	0		9	Lobelia, per doz.	4	0		6	0
Christmas Rose	0	0		0	Marguerite Daisy, dozen	6	0		12	0
Cineraria, per dozen	5	0		9	Mignonette, per dozen	5	0		8	0
Cyclamen, per dozen	0	0		0	Musk, per dozen	2	0		4	0
Deutzia, 12 pots	6	0		9	Myrtles, dozen	6	0		12	0
Dracena terminalis, doz.	24	0		42	Palms, in var., each	2	6		1	0
" viridis, dozen	12	0		24	Pelargoniums, per doz.	9	0		18	0
Epiphyllum, per dozen	0	0		0	Primula (single), per doz.	0	0		0	0
Erica, Cavendishii, per pt.	2	0		3	Rhodanthe, per dozen	6	0		9	0
" various, dozen	12	0		18	Roses (Fairy), per dozen	8	0		10	0
" ventricosa, per doz.	12	0		18	" 12 pots	12	0		24	0
Euonymus, var., dozen	6	0		18	Saxifraga pyramidalis,	18	0		24	0
Evergreens, in var., do en	6	0		24	per dozen					
Ferns, in variety, dozen	4	0		18	Spiraea, 12 pots	8	0		12	0
Ficus elastica, each	1	6		7	Stocks, per doz.	4	0		6	0
Foliage plants, var., each	2	0		10	Tropaeolums, various, per	3	0		6	0
Fuchsia, per doz.	0	12		0	dozen					
Genista, per dozen	3	0		1	Tulips, 12 pots	0	0		0	0

Bedding Plants in variety, in boxes and pots.



YOUNG FARM STOCK.

VERY tempting indeed is the price of all young stock just now, yet to all who are inclined to yield to it and sell, we say Don't, if you have room and food enough for them. Far better is it to have stock growing into money than to dispose of it as store calves, lambs, or pigs, and to have the money lying idle at the bank. By all means let us strive for a quick turn over and speedy realisation of profit upon expenditure, but do let us take care to realise in the best way, and not to spoil results by undue haste. There was a time, and that not long ago, when we had to turn to the muck heap for anything like a profit upon cattle, and the result was very doubtful indeed when the price of Wheat fell, and the urgent need for economy led to inquiry into the real value of farmyard manure. At best it is a costly article, and cattle should never be kept on a farm solely for the muck.

If every spring a careful selection were made of the best animals for the home stock, and inferior ones got rid of as early as they were in marketable condition, the growing superiority of our farm stock would be accelerated, and the general superiority of British stock would then bring purchasers in greater numbers from abroad. Is it not selection which has given its golden superiority to the Hollywell pigs, to the Elsenham horses, the leading breeds of sheep, and Shorthorn cattle everywhere? It has given us heavier fleeces and better quality of wool; it has enriched the milk and almost doubled the quantity of it in our best dairy herds; it has given wonderfully increased power of rapid flesh formation and frame development to cattle, sheep, and pigs; in horses it has led to an admirable combination of symmetry, endurance, speed, strength, and lightness, and even in poultry we owe to it better table birds as well as improvement in egg production.

This great work of improvement in farm stock has brought with it obligations which cannot be ignored. The hardness of wild cattle has vanished from our flocks and herds, and an ever increasing amount of care and attention is requisite to shield them from harm by exposure to cold and wet, as well as from contagious disease and parasitic insects. Not yet has the value of warmth and shelter obtained anything at all approaching the recognition it merits and is bound to have eventually. Every year there are losses of valuable animals from exposure which might easily have been avoided, and the value of the lost animals would have gone far towards the much wanted provision of extra shelter both at farm homesteads and in pasture enclosures.

Amidst all the very great improvement which comes perforce of progress there remains much to be done by individuals solely in their own interests. Only a few days ago we saw a lot of yearling cattle at market that had unmistakably had to rough it all last winter. Evidently they never had been fat or even plump with calf flesh, for they were gaunt, coarse, and stunted in growth, and altogether so low in condition that it would require many weeks of good grazing to bring them up to a respectable condition of plumpness. Such poor lean stock must be sold at a low price either to a dealer or to a farmer short of stock, and a shrewd man may see his way to some slight amount of profit upon them after a summer's run upon rough pasture. Very different is the ease of well-bred, well-managed calves; they are never suffered to fall off in condition. With a long well shaped body, "broad over the loins," a full eye, and deep chest they have frames which under judicious management expand quickly, and are ripe for the butchers as fat bullocks—not tallow bags, but just that happy mean of plumpness which affords useful joints with as little waste as may be in about half the time required by an ill-bred coarse animal.

Pray mark the term of judicious management, for it is very possible to kill young stock with kindness—overfeeding inducing a plethoric habit, which often ends in apoplexy both among calves and lambs. At many a farm where corn has given place to pasture, barns are turned to account for rearing stock, and even where they are required for corn for some time after harvest, they may be turned to account now for steer calves, which may never go out on pasture at all, but remain in some such shelter untried by exposure to cold and wet, or heat and insects. Heifers for the herd go into our favourite lodges, with yards and paddocks adjoining, and are kept up in fair healthy condition, as we like sufficient development before breeding to ensure a good calf. More particular details of the feeding and management of young stock must be reserved for another paper. In this our aim has been to give a timely reminder of the importance of careful selection both for breeding and store stock. Breeding before purchase say we, and though many a homestead may be deficient in convenient buildings or shelter for rearing young stock, very much may be done by those who are apt and willing to manage with any rough and ready means that may enable them to help themselves.

WORK ON THE HOME FARM.

The plant of early sown Mangold and Swedes is now well up, and the horse hoes have been kept going between the rows. We use patent expansion hoes, and take care that they are set so as not to work so near the plant as to cause harm. Hand-hoeing will follow at once, and by the time the hoes have been through the field the plant will be ready for singling, for growth is brisk in this genial May weather. Recent showers have brought on the first crop of Swedes, Cabbage, and Kale out of harm's way from fly, and with such a warm moist seed bed germination will be brisk with the main crops now being sown. Preparation for root sowing is an easy matter enough on land which has been under really good cultivation for several years. The difficulty and extra expense are with the farms which fell in hand last Michaelmas, much of the land being in a sadly imperfect state of cultivation, and we are taking full advantage of this favourable weather for as through a clearance of couch grass as we can. Where the beds of this pest have laid thoroughly hold of the soil, plough, roller, duck foot barrow, and hand fork all play an important part. If possible the couch is burnt on the spot in small fires, but if the weather becomes at all unsettled it is altogether best to collect and cart off the weeds at once. On light land or mixed soil all this is possible now, and with a free use of manure useful crops of roots may be had this season, which, if folded with sheep, will bring the land into fair condition for any other crop subsequently. With heavy land the process of reclamation is necessarily slower, and it may be necessary to resort to a summer fallow in order to clean it thoroughly. In whatever way this is done we must be careful that the interval between the use of plough or cultivator is long enough for the full exposure of weeds to the sun. With attention to this point there may be as much stirring of the soil as possible, and where such soil is in a crude or sour state a dressing of lime fresh from the kiln may prove highly beneficial if applied after the land is as clean as it is possible to make it in a single season. We shall not be able to eradicate all the perennial weeds, but we may undoubtedly do much towards so desirable an end if only we continue to have the powerful aid of fair weather. Instead of a hindrance an occasional shower is really an aid to soften clods which no implement will crush when hardened by air and sunshine.

METEOROLOGICAL OBSERVATIONS.

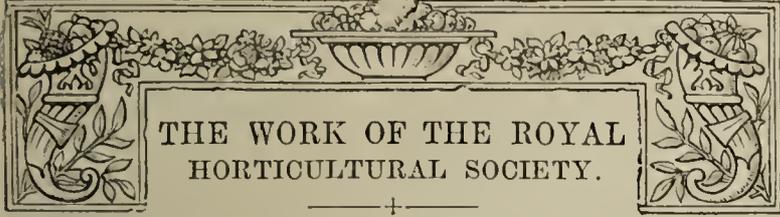
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1890. May.										
Sunday	29.447	51.8	49.8	N.W.	50.4	61.9	44.7	102.8	47.0	0.11
Monday	29.602	58.8	53.7	N.E.	50.9	67.7	47.6	103.1	41.9	—
Tuesday	29.577	53.4	51.0	N.	51.6	66.7	50.1	113.9	42.1	—
Wednesday ..	29.847	56.1	47.1	W.	52.4	63.8	47.8	114.0	42.7	—
Thursday	30.114	54.8	48.9	S.	52.9	63.2	44.5	107.2	37.8	—
Friday	29.946	60.7	52.4	S.E.	52.9	70.1	44.8	113.9	36.9	0.684
Saturday	29.699	54.9	50.4	S.	50.9	64.1	50.9	113.9	48.0	0.018
	29.747	55.8	50.5		51.7	65.4	47.8	109.8	42.3	0.219

REMARKS.

- 11th.—Generally bright and fine, with occasional sharp showers.
 12th.—Gloomy and oppressive in the morning, gradually clearing towards noon, and warm hazy afternoon, with occasional cloud.
 13th.—Occasionally cloudy in the morning, then fine and bright.
 14th.—Mild and bright throughout.
 15th.—Fine and generally bright, but the sky clouded over once or twice.
 16th.—Bright mild day, haze in afternoon; cloudy in evening, with slight showers of rain in night.
 17th.—Generally cloudy till 11 A.M., then bright sunshine.
 A generally fine week, with temperature rather above the average.—G. J. SYMONS.



THE WORK OF THE ROYAL
HORTICULTURAL SOCIETY.

THERE are many points in your article of the 1st inst. on the work of the Royal Horticultural Society to which exception might be taken, but I shall confine myself at present to one or two upon which I may fairly claim to have special knowledge. These appertain to questions of finance.

If words have any meaning at all you cast doubt on the good faith and integrity of the officers of the Society, and question the accuracy of the revenue account and balance-sheet presented at the annual meeting in February last. You state that no allusion is made in the accounts to labour employed at the Drill Hall meetings, and suggest that in all probability the cost of such labour is included under Chiswick Garden expenses. In fact, you clearly imply that the accounts are "cooked" to make Chiswick appear as costly as possible, and that expenses fairly chargeable to the Drill Hall meetings are made to appear in the accounts as Chiswick Garden expenses.

These are plain matters of fact, and can easily be proved or disproved. There can only be one answer to such charges as these, and that is a formal demand, which I now make, that you will either substantiate them or withdraw them. In order to afford you the fullest opportunity for doing one or the other I have the authority of the Council to arrange to meet you, or anyone deputed by you, to examine the books of the Society and invite the closest and fullest scrutiny. The books and vouchers, as left by the auditor, will be entirely at your disposal, and I am prepared to enter fully into every item entered in the accounts.—D. MORRIS, *Treasurer, R.H.S.*

[Mr. Morris appears to have misapprehended the purport of the remarks to which he takes exception, and has attached a meaning to them that they do not legitimately bear. Neither he nor any individual was in mind when they were written. They are a free and fair comment on a public financial statement that is not intelligible to all Fellows of the Royal Horticultural Society. It is not a question of "faith and integrity," but of methods. Mr. Morris's reference to "cooked" accounts is gratuitous. Their general accuracy has never been disputed, but the manner of their presentation is not explicit. We have been many times asked what the "&c." means which is appended to "Implements" as costing £122 19s. 7d. in one year. We cannot answer the question. We have been asked also to point out the definite cost of the Drill Hall and of Chiswick, separating the labour accounts. We are unable to do so. "Floral meetings and conferences" are debited with £55 15s. 1d. for labour, but the floral meetings are held with few exceptions in the Drill Hall, and the conferences are held at Chiswick.

The notice of Fellows has been drawn to these matters by attention having been called to the cost of Chiswick in the official report, and the unsatisfactory attendances at the conferences there, while no corresponding allusions are made to the Drill Hall. These are matters of fact.

If the Council of the Society really desire us to make the "closest and fullest scrutiny" of the books and vouchers, in preference to furnishing the information which it is represented is so easy to supply, we have not the slightest objection, reserving full liberty to publish what we find there, whether it justifies our allusions or not. We shall expect to find no "cooked" accounts,

but to find a different method of presenting them, so that the actual cost of and revenue to the Drill Hall will be made clearer than appears in the official statement.

We are also convinced that our references to the Society's *Journal* were fully justified. It has cost nearly £500, and is not only needlessly bulky, but imperfectly edited as a scientific work. We have given the Royal Horticultural Society ungrudging support, and shall not be deterred from doing so again; but we must maintain our right to free action, and we do not believe that a policy of praise under all circumstances is the best for the permanent well-being of any public institution.]

TODDINGTON.

TODDINGTON is a familiar name to many readers of the *Journal of Horticulture*, and the great work that is being conducted on Lord Sudeley's estate, both in the production of fruit and its manufacture into jam, is destined to make it a chief centre of interest in the fruit world. When contemplating a caterpillar pilgrimage into Herefordshire a few weeks ago I was told I might possibly see Toddington on my return journey. By the kindness of Captain Corbett, who is in command of the forces there, I was enabled to carry out my wish. At once I may say that the fruit-plantations exceeded my expectations, not in extent so much as in the admirable manner in which everything is conducted. We hear much about the large fruit farms in America, and no doubt they are extensive and well managed; but I shall have to see them before believing they excel in order, completeness, and systematic management the plantations and appurtenances on this Gloucestershire estate.

The extent of land devoted to fruit growing is 500 acres; one plantation occupies 300 acres, and there are two other plots of 100 acres each. The whole of the land is as clean as a garden, and every tree and bush has the attention it needs. The time was too short and the march through the long avenues too quick for note-taking, and all that can be recorded are general impressions, that may, perhaps, give some idea of the work in hand. This, beyond doubt, is as good as it is great, not good for Lord Sudeley alone and his enterprising and able associates, but for hundreds, if not thousands, of busy workers who find employment during the season. If his lordship and co-operators do not make great fortunes in the enterprise—and I do not for a moment think they have yet heaped up riches from it—they must be fairly regarded as benefactors to the district.

The capital invested must be enormous, and no one would be justified in investing his all in fruit growing, or in other words who could not afford to wait a few years for the trees to grow and profits to come. I do not know of anything much easier than growing fruit by arithmetic and showing tempting profits in a year or two on paper, but in practice something often happens that upsets sanguine calculations and throws the figures out of gear. In estimating profits a large margin must be allowed for contingencies. A bad year may come when a good one was expected. Frost and wet at the wrong time, caterpillars and insects, all have to be reckoned with. Yet, after all, with sound work in land preparation, and adapting varieties to soil, also determining the extent of the undertaking by the capital at command, these with knowledge gained by experience in routine operations and skilful and prudent supervision, the reward eventually comes, and it is proportionate to the correctness and judgment that has been exercised in planning and conducting the whole work. Toddington, I believe, possesses those essentials, and I quite agree with Lord Sudeley when he says in a letter before me, "We have all worked very hard for several years, and I have reason to be satisfied with our prospects in the future." The "work" is apparent and almost overwhelming in its magnitude. The promise is in the countless thousands of well pruned, healthy, fruitful trees and bushes, which I have not the least hesitation in saying are a credit

to all who have shared in bringing them to their present satisfactory condition.

What are the fruits generally grown? That is a question I have often been asked. The standard trees are mainly Plums, the inter or under crops Currants (Blacks predominating), Raspberries, and Strawberries. Not many Gooseberries are grown, at least I saw very few, nor Apples and Pears in the 300 acre plantation. The soil explained the reason. A deep drain revealed its nature—clay. The surface is fairly workable in suitable weather, but below it the ground cuts like cheese. Strawberries and Raspberries do not make a quick start, but when established bear fine crops of splendid fruit, and continue doing so much longer than in light soil. It is the same with the Plums, and they will bear fruit of the best character for years. The trees are apparently about 6 yards apart, and the bushes about as many feet asunder in line between the trees and in the spaces between the rows. Roads are formed at convenient intervals, and as showing the nature of the soil are being trenched, small coal or breeze being added as the work proceeds, and the clay burnt into ballast. This will render them firm and clean. The smoke from the burning roads was found to be of service in checking the increase of caterpillars, and with that object rubbish was being burnt in convenient places, and clouds of smoke were seen rising in different places among the trees. Very severe and persistent has been the combat with the foe. Probably almost every advised remedy has been tried in varying strengths and with the greatest care, the experiments having been examined by a committee of fruit growers. Very interesting was the discussion that followed after the inspection, which resulted in the recommendations of Paris green paste in the proportion of 1 ounce to 10 gallons of water for Plums, and 1 ounce to 20 gallons for Apples. Since then Mr. Campbell's formula, as recorded on page 427 last week, has been found more effectual by him, and will probably be tried at Toddington. The work of spraying hundreds of thousands of trees and bushes over and over again is gigantic, but it has to be done, or they would be devoured. Small French pumps are used, they fit like knapsacks on the backs of the men, who work the handle with one hand, and guide the nozzle with the other for distributing the spray, which falls like mist on the trees. The combat has been severe, but the pests are practically mastered. The foliage is saved, and 500 tons of fruit expected to be gathered. If the invading horde had been allowed to take possession and remain unmolested the yield might perhaps have been 500 stones. The attacks of the pest appear to be the most violent in low and much sheltered positions. Mr. Hooper said at the meeting that his fruit-growing land was at a considerable altitude, and he had some difficulty in finding a caterpillar. My advice to intending fruit-growers has long been, "If you have a choice, keep out of the valleys." Shelter is good, and in some positions essential, but in others may do more harm than good.

Mr. J. Hiam placed his finger on a strong point in the enemy's position when he said "the caterpillars got into the centre of the bud and ate all the inside out and the petals closed over; he was afraid that was where they (not the caterpillars) might be beaten." He was not satisfactorily answered, and I shall be able to give him strong supporting testimony another day.

Returning to the fruit. One portion of the great plantation alluded to is on the side of a hill having a long steady slope to the valley, and the lower the trees go the less satisfactory they are. In other plantations on higher ground, where the soil is also freer, Apples, Pears, Cherries, indeed all kinds of fruit are grown, and in the later plantations preference appears to have been given to bush trees. They do not require stakes, and I understood Lord Sudeley to say that one staking of his standards cost him £700. They are, however, now strong enough to stand alone, and the clean stems are convenient for banding with paper and smearing with cart grease for fixing the wingless female moths as they creep up the trees at night. Thousands have been caught in that way, and good must have been done, for one tree was pointed out to me that had not been banded, and it was the worst attacked of all; indeed if all were like it there would not be much fruit for the factory this year.

This factory is a feature of Toddington. It is a huge building three or four storeys high, and is being considerably enlarged. Mr. Beach, jun., is the presiding genius there, and even at this season of the year has 130 people employed in preparing jam for the market. The demand is ever increasing, because the product is pure and the public are finding it out. They could not if they would make up mysterious concoctions, for only genuine jam fruit is grown, and the most scrupulous care is exercised in its selection and conversion. It is not in the least suggested that similar care is not exercised by other fruit growers and firms, for it is satisfactory to know that it is, but it is equally known that tons of worthless rubbish in Apples, if nothing worse, is made to form the

"body" of jam which is sold as something else, and this miserable practice is still advocated in occasional letters to the newspapers. The demand for the genuine article will be bound to increase, and it is because the Toddington jam is genuine that Mr. Beach has in a few years built up his gigantic business. The trade in bottled fruit is also enormous; the huge bins that were filled with the different kinds, and the great breaches made in them by withdrawals, proving this conclusively. The boiling of the fruit is done by steam, and so great is its heat under pressure that when the tap is turned and the steam admitted round the coppers cold water placed in them boils in fifteen seconds. This is quick work and clean, and there can be no burning of the fruit.

During the fruit gathering season an army of respectable women is employed, and clean and comfortable accommodation is provided for them in buildings erected for the purpose, the sleeping and cooking departments being apart, and all under the best supervision. In the routine work of cultivation a practical foreman has charge of about 40 acres of plantation with a staff of men under him, and thus the work goes surely on without confusion, and no one can inspect it without being satisfied that it is done right well.

Large blocks of curvilinear iron and glass structures have been erected, and will very soon be a source of profit, if they are not now, and will insure a substantial income from Grapes, Peaches, Tomatoes, and flowers if during any season the outdoor crop of fruit should fail. But when the caterpillar is stamped out, as it will be, it will be a marvellous thing if all kinds fail at once through inclement seasons. There is very remote fear of anything of the kind occurring, and as the trees, planted by Mr. G. Bunyard about eight years ago, will soon be in full bearing, and in the "holding" soil remain so for several years, and as the bushes will commence improving in value, the ultimate estimate of a thousand tons of fruit a year will in all probability be considerably exceeded.

Lord Sudeley is a cool clear headed man of business (not an enthusiastic faddist), and so undoubtedly is Capt'n Corbett; and to both of them, and my guide Mr. Mallison, I am indebted for considerate attention. Mr. Wise, the active manager of the remarkable undertaking, I was unfortunate in not seeing, but there can be no doubt he is a gentleman of great administrative ability, while all who know him speak in high terms of his zeal in the discharge of his duties and of his courtesy to all.—J. WRIGHT.

FLOWER CULTURE FOR PROFIT.

SEMI-DOUBLE PRIMULAS.

If the flowers of these are sent direct to the London markets they are not particularly profitable, but at the same time are remunerative. Where, however, large quantities of cut flowers are needed for home decoration, the surplus being sent either to private customers or to the nearest florists' shops in the district, then double Chinese Primulas rank among the most generally serviceable plants that can be grown. I am thinking of and referring more especially to the old semi-double white, which cannot be propagated from seed, no other form, whether propagated from seed, cuttings, or divisions, being half so profitable. That there has of late years been a great improvement in the strains of semi-double Chinese Primulas, and which can be as readily raised from seed and grown as the single forms, I freely admit, but they are nothing like so serviceable as the good old semi-double white. There are two forms of the latter, one having stouter trusses, larger, rather more double fringed flowers; the other, and which is the most common, being the least showy, but in reality the more floriferous and profitable of the two.

A stock of either cannot, as a rule, be very quickly raised, no nurserymen and but few private gardeners caring to part with strong many-crowned plants. The start has therefore, in most instances, to be made with small plants as received from the nurseries, and the less these are tampered with the first season the better. Rather strive to grow them to a great size before the autumn, and during the following winter they will form several crowns or divisions suitable for propagating purposes. Where so many private gardeners err is in being in too great a hurry to increase their stock of plants. These Primulas cannot be propagated anyhow, and every division slipped or taken off the old stem with a knife must have a portion of hard stem attached, or it is very doubtful if it will strike root. "Irish" or rooted cuttings are the best, and with our large stock of plants we simply pull them in pieces every spring, shaking away some of the old soil from the roots and repotting. The surest method of quickly raising a good number of plants is to trim off the lower leaves from the stems and to bank them up with leaf soil and sand. This being done directly after the principal flowering period is over, the pots set on a shelf in a moderately warm greenhouse, and the top-dressing

kept moist, it ought to be possible to take off a considerable number of divisions well rooted into the leaf soil by the end of April or in May. In any case it is unwise to interfere with comparatively young or soft divisions, the more sensible plan being to leave these alone till the next spring. Unrooted divisions, or cuttings with a small portion of hard stem attached, should be placed singly in the centre of thumb pots and kept in a brisk though not too close and moist heat till rooted.

In but few details should the treatment of this class of Primulas resemble that which answers well with single flowered seedlings, thousands of plants probably being annually ruined owing to the fact being unrecognised. The doubles, as a rule, require more heat all the year round. In common with the ordinary Chinese forms they root most freely in a rather light sandy compost, formed, say, of two parts good fibrous loam to one either of good leaf soil or peat, with a little sand, charred soil, and ashes, or charcoal only added. Comparatively small shifts ought to be given, and the drainage should be good. Always pot somewhat deeply, taking care, however not to bury the hearts, exposed stems being liable to canker. Keep the newly potted plants on a warm greenhouse shelf in preference to either a close or cold pit or frame, and water them carefully. Any in rather small pots and well rooted may well be given a shift, but the bulk of our plants are potted once a year. During the hottest part of the summer they may be set in frames, given plenty of air and lightly shaded, but the watering must be done carefully. If kept in these places much after August the plants are liable to turn yellow and lose their lower leaves, this seriously crippling them. They ought, then, to be housed early, and during the winter must have more heat than is kept up in the majority of greenhouses. Ours flower the most abundantly and continuously on swing shelves in a large span-roofed warm greenhouse, and the back shelves in a low range of plant houses, the temperatures in neither case seldom falling below 45° in the night time, or exceeding 60° in the daytime. In a somewhat lower temperature they form stronger trusses of larger flowers, but not fast enough to suit us. They are kept carefully supplied with water, and given weak liquid manure occasionally. Thus treated they are surprisingly floriferous, and we consider them almost invaluable. When these Primulas have to be sent away whole spikes must be cut, but there is no reason why a goodly number of the lowest flowers should not be taken off for home use. The latter can be bunched and given a stem, in which case they are suitable for mixing in wreaths or bouquets, or they can be used for buttonhole bouquets. When sent to the shops or market the spikes should be made up into bunches of thirteen and packed flatly and closely together. As a rule 6d. per bunch is the outside price, more often than not 4d. being the average. Even at this price they pay fairly well, as the more flowers are cut from them the more the plants improve in vigour and floriferousness.—M. H.

THE TULIP DISEASE.

THERE can scarcely be a doubt that the beautiful florists' Tulips, which appear, generally speaking, to have gone out of fashion during past years, will steadily come into favour again. Some, indeed several, northern florists have continued their culture with unabated interest, but very few beds of the best named varieties have been seen of late in the south of England. Mr. Alfred Ghater appears to grow them at Cambridge, and Dr. Hogg had obtained bulbs from many sources, and intended having a bed this year worthy of the old days, but has been woefully disappointed. His search for varieties at home and abroad brought out the fact that the demand for bulbs of sterling sorts was increasing. He, however, succeeded in procuring a goodly number, including many of recognised merit.

His chief bed consisted of sixty-five rows of seven bulbs, but as he had only one or two bulbs of many, if not most, varieties, it will be seen his collection is tolerably extensive. Thoroughly understanding the properties of the flowers, and being exacting in having them correct, he weeded out rigidly last season, fully anticipating a floral treat as the result of his endeavour. The bulbs were planted at the right time and in the right manner, but he has not had two dozen good blooms. When the growth appeared above ground the Doctor was obliged to remain in the north of England for some weeks. The weather in Sussex was cold, wet, hail, rain, and sleet alternating. He was told the plants were not looking well, and had them covered. This was done, but on his return he found all the leaves attacked with disease. It was hoped they would improve with the weather, but instead of that the specks increased in size and numbers, and a general collapse followed, leaves and stems withering away, being eaten up, so to say, with the devouring fungus, vibrios, or both that took possession of them. Scores of plants produced no

blooms, and scores of others only the poorest apologies for them. As I am one of those individuals who regard the clear, well formed, chastely marked, and brilliantly coloured florists' Tulips as amongst the grandest of floral creations, I had been hoping to share with Dr. Hogg the pleasure of a grand display. This was out of the question, but I still went down to Sussex to view the wreck, for wreck it was, under the canopy of canvas.

What caused the attack that proved so virulent and destructive? Although the disease appears similar to that which occurs in some places in Holland, I am not quite satisfied that it was imported from there. I am told on very good authority that bulbs taken from infested beds, and planted in other and suitable soils and positions, produce clean leaves, and though the plants are weakened by the attack of the previous year they are healthy; but if the bulbs of clean and healthy plants are planted from where the diseased were taken the former become diseased in turn. This suggests that the soil either contains the disease germs or is lacking in something which is essential to healthy growth. The plants in one part of Dr. Hogg's bed were affected last year, some rather severely, but as it was the lowest part it was thought excessive moisture was the origin of the evil, yet after raising the level of the bed and cutting a drain to divert the water from it the result this year was as stated.

The soil staple is a whitish marly loam, heavy, retentive of moisture, and limeless. When saturated it is like putty, but when dry it is like flour. It is a cold soil, and spring crops are not early, but the summer growth of almost everything is very luxuriant. Tulips have to grow during the cold term, and if at a critical time a week or two of miserably wet and cold weather prevails, the growth must be arrested, stagnation of the sap occurs, and the enemy then may possibly take possession. It is questionable if fungi are the cause of so many diseases in plants as are popularly supposed, but the real origin of those affections may be crude, impure sap, peculiarly favourable to parasitic growth. It is in the direction indicated—cold wet soil and its consequences, to which I am inclined to largely attribute the failure of the Doctor's cherished Tulips. On higher ground he is making a new garden. The soil is freer, less retentive, darker, hence warmer. It will be an earlier spring, but not a better summer garden than the one above alluded to, and will be better for Tulips. This is not mere conjecture, for some surplus bulbs put in it in the autumn have made decidedly better growth, and have cleaner, healthier leaves and finer blooms, without any shelter, than where such care has been bestowed in the principal bed. In this new garden—the third on the estate—the Tulips will be grown another year, and if lime is added, and the surface of the lightish coloured soil can be covered with dark leaf mould, or even sweet ashes—from wood preferably—for absorbing heat, the plants will be benefited, and protection must be given soon enough for preventing stagnation of the sap early in the season. Mr. Horner's plan is the best—glass protection—and if Hyacinths and decorative Tulips are worthy of this in the form of greenhouses, surely the far more valuable and more beautiful florists' varieties are worthy of it too.

"What a cheek the man has," I fancy I hear someone muttering, "he is actually telling Dr. Hogg how to grow Tulips in his own ground and through his own paper." That is not so. The Doctor knows far more about Tulips than I do and most other things besides, except gardening among London cats and London prigs; but if I can derive lessons from his calamity that may possibly be of service to others, either directly or by eliciting information, he will gladly permit his Tulip failure to be made the text of this little discourse.—J. W.

TREATMENT OF SOILS, MANURES, AND CROPS.

CELERY AND TURNIPS.

I HAD intended giving my experience upon the treatment of Celery much sooner, but circumstances prevented my doing so. Sowing of the seed is obviously important, and the time the Celery is required must be a guide to the time of sowing. Different treatment is required if the Celery is wanted for the partridge shooting season or for exhibition purposes. It is, however, too late to go into details on raising plants, for they will soon be ready for the trenches—indeed, some are in them. A weak solution of liquid manure given during the time they are in their last quarters previous to planting out is beneficial. Celery may be planted upon any of the plots left vacant by Coleworts, Cauliflowers, Onions, Peas, or Broccoli, or any of the winter greens; but should not follow Parsley, Carrots, or Parsnips. The width of the trenches must be left to the grower; they can be made from 4 to 6 feet apart, cutting them out with a clean and sharp spade 9 inches to a foot deep, and then have a good dressing of manure. I prefer good horse droppings, such as is used for Mushroom beds

turned it in at the bottom of the trench, and a good watering should be given after planting.

From the time the plants commence free growth liquid manure may be given, but not to such an extent as to cause the plants to run. If the weather is dry give plenty of clear water, and if it is wet give a sprinkling of pure blood manure or guano, that the rain may wash in, but be certain of its purity. The finest Celery that I have tasted was grown by my brother at Westley Hall Gardens. It was Veitch's White; but I think he can claim more credit for his treatment than for the variety, good as it is. He used blood manure from the Westley Works, to which he thinks the quality of the Celery was due. Earthing-up should be done periodically and with care, and finished by November; then there is not much fear of any harm being done by frost, yet as winter approaches have close by or between the trenches some covering material ready for use. When the curative properties of Celery are generally comprehended by the community a better supply will be demanded. The present supply is bad. If the masses could obtain three sticks for 1d., instead of as now 3d. for one stick in midseason, they would soon find out that raw Celery is better than the doctor, and that boiled Celery is better than the doctor, dentist, and chemist combined.

Celery when well grown is a profitable crop, and a land cleaner and improver. I should like to see the time when three to six sticks of Celery can be procured by our town labourers and artisans at the price of one or two now. Then, and not till then, will the producer be doing his duty to his landless brethren. No doubt some may think that lower prices would not be sufficiently remunerative—that is because they do not go on the plan of small profit and quick returns.

Turnips are always in demand, and a constant supply should be maintained by frequent small sowings of approved varieties from February until August. Some growers say till September, but I have never found any crop to repay for the trouble spent in producing it after the first week in August. The Turnip may follow any crop but that of its own order, and the soil that best suits them is light loam. This at the time of preparation should receive a good dressing of lime or marl. Sow the seed broadcast, and when the plants appear the hoe should be unsparingly used among them. Each plant should have a square foot of space. If the weather is dry time spent in watering will be repaid with crisp sweet Turnips instead of a stringy mass. If they are attacked with the fly sprinkle the plants in dewy weather with soot and lime. The Six Weeks and Yellow Globe are useful varieties. —G. A. BISHOP, *The Gardens, Wightwick Manor.*

SPRING FLOWERS AT HOME AND ABROAD.

(Continued from page 388.)

HOME-GROWN BULBS.

It is difficult to estimate the value of the bulb importations to this country. It probably approaches a million sterling, and is certainly growing rapidly. In a few years the seven figures will be required to mark the sum, if they are not already. This is a large amount to send away for spring flowers, and it is a natural question for a business-like nation to ask, if some of it could not be kept at home without sacrificing the flowers; in short, if we could not grow them ourselves. The question has already been debated in a perfunctory manner, and, as might be expected, has been answered in various ways. Let us see if any further light can be thrown upon it.

The character of the soil in which the Dutch grow the bulbs which they export in such enormous quantities is pretty well known, and on the presence or absence of land of a similar description in this country depends whether they can be grown equally well here or not. The soil on the bulb farms is pure sand to a depth of 3, 4, or more feet, overlying a solid substratum of clayey peat, which holds the water. A good depth of sand over a retentive subsoil is, then, the first requirement, and the first thing to be imitated. Understand that it is not all ready to the bulb grower's hand even in the favoured districts. To bring land under cultivation is usually a matter of considerable trouble and expense. In the centre of the bulb-growing districts there is an illustration of this. A considerable portion of land is being gradually brought into cultivation to meet the increasing requirements of the trade. Much of it is a considerable height above the level of the farms, and is covered with dwarf stunted shrubs, which afford a cover to game. Whatever may be the altitude of these sandy uplands, they are cut away until the water is reached. They consist entirely of sand, and an arithmetical calculation will give an idea of the labour required to clear a square mile of ground 100 feet above the water level.

Canals are cut as the work proceeds, so that barges can proceed up to the foot of the sand cliffs, and convey the material away. By these means, steadily pursued over a long period of years, the whole face of many parts of the country has been altered, and barren wastes converted into fields of flowers.

Before proceeding to matters of cultivation it will be well to ask if the natural conditions here indicated exist in any part of Great Britain. Knowledge of how to produce is useless without the means of production, of which the first essential is the soil. Have we got it? that is the question. With suitable land the rest is easy, for capital will command skilled labour. I do not believe that the ordinary soil of three-fourths of the United Kingdom could, under any course of culture, be made to produce suitable bulbs for sale in sufficient numbers to make them a profitable crop, but then neither would it in Holland. Reliable authorities to whom I have spoken on the subject have told me of natural conditions closely corresponding with those above described in this country, and if on investigation their observations prove to be accurate, a great obstacle to bulb-growing for profit in England will have been removed, or rather be proved to have never existed. I had better not indicate the precise localities where these gold fields exist, or the present owners of the land may find themselves embarrassed by a shower of tempting offers from persons for whom Wheat at 30s. a quarter has lost its attractions, in the face of a possible £50 per acre from the culture of bulbs.

Nothing can be more significant of the confidence of the Dutch growers that the bulb trade is entirely in their own hands than the manner in which they receive any suggestions as to the possibility of cultivating Hyacinths and Tulips on a large scale in Great Britain. To talk of this nature they listen with polite complacency, but can never be persuaded to treat the matter as one worthy of serious consideration. Possibly the thoughts of many are expressed in the frankness of one. "I wish they would try to grow bulbs in England. They would want a good many to begin with, and that would improve our trade, but they would be sure to fail, and so we should never suffer." I gather that their confidence lies chiefly in the natural conditions under which their vast industry is pursued, but also, to some extent, in difficulties of culture. The latter is but a weak support. Their system of management is now pretty well known, and though there are, no doubt, many details more or less important which are not made known to casual visitors, the principles are very well understood. The majority of the bulbs are raised by inducing the formation of small bulblets through cutting old bulbs, the young "fry" being removed, planted and grown for three or four years until they are of a saleable size. Only a few, such as Scillas, are raised from seed. The only addition made to the soil is cow manure, but it has to be employed in such quantities that its purchase is one of the most serious items of expenditure. Cutting down, lifting, drying, and cleaning are all important points in the method of procedure. The two latter are of special importance. No matter how large and well ripened the bulbs might be the purchaser would not accept them if coarse and dirty, although he knows that they would flower well. Foolish? Not at all. His customers would certainly refuse them if they were not clean and well finished, so that it would be useless for him to buy. This is why ordinary garden soil would be useless to cultivate bulbs for profit. They might turn out large and heavy, but their appearance would spoil them. The bulb growers do not dispose of rough, ill-shaped bulbs for retail distribution; they are sold to the market growers, and the latter put their own polish on.

Not only the cultivation of the bulbs then, but also the preparation of them for sale, has to be considered. The latter entails much labour, for large growers distribute several millions yearly, and every individual bulb has to receive the hall mark. The labourers are brought up on the farm, however, and know exactly what to do in the most expeditious manner. When bulb-growing begins in England the first thing to be done will be to import skilled labour from the Dutch farms, and the question of culture will be quickly settled. Many labourers add materially to their wages in Holland by raising bulbs in their own gardens and selling them to their employers. It is a common thing to see whole strings of cottage gardens filled with Tulips which are grown for sale to the large merchants and exporters. It is not easy to see how time is found for planting and tending them, as the farms claim attention in the busy season from daybreak to dusk; but the Dutch workman is a marvel of perseverance, patience, and thrift, taking a deep interest in his work, anxious to make a little if anything can be made, and well content to divide his few leisure hours between the tending of his flower beds and the discussion of his halfpenny cigar, two occupations which he pursues simultaneously, apparently deriving about equal enjoyment from both. He is businesslike to the backbone, and any British landowner who finds he has suitable soil at command has only to offer

him a good wage to command his services, and pave the way for a profitable enterprise.

A LARGE BULB FARM.

If the title of these papers is to remain seasonable further remarks on bulbs must be hastened, for spring is fast merging into summer, and spring flowers will soon be out of date for the present year. A few notes shall be devoted to one or two important farms of special interest to cultivators in this country. The names of the great wholesale firms would be unfamiliar to all except tradesmen, but that of Messrs. Ant. Roozen & Son is well known, and others are springing up to whom reference may be made. Messrs. Roozen's business is of enormous magnitude, and it is confined almost exclusively to this country. The father of the present proprietor was one of the first to see the chances of a profitable trade being built up by direct communication with British amateurs, to be reached by means of advertisements; but it is to the present energetic head that the main development of the business, which was commenced sixty years ago, is due. The variety of plants grown by them is as noteworthy as the enormous numbers of popular kinds that are cultivated. There are Hyacinths, Tulips, Crocuses, and Scillas for the million, and there are rare and choice Irids, Chionodoxas, Narcissi, &c., for flower lovers who take a special interest in beautiful hardy flowers. It is late now to speak of the early Crocus species, but it may be well to note that there is a most interesting and extensive collection on this famous farm. A few species that I saw in flower were aureus, Aucheri, Olivieri, reticulatus aureus, pusillus, biflorus albus, and Leedsi, the latter purple with white tip, a charming little flower; but there are numerous others, and it was satisfactory to hear that the demand for these beautiful and valuable flowers, which bloom during February and March, is increasing.

Irises, as might be expected from the important position that they hold amongst hardy flowers, are grown on a very extensive scale. There are large quantities of the more popular kinds, and they must present a magnificent sight when in full beauty, all the sections being represented by the best varieties. Nor are choicer varieties absent. Apart from the ordinary customers buying Hyacinths and Tulips for greenhouses and gardens, Messrs. Roozen have a constituency of hardy flower-lovers seeking novelties and rarities on whose behalf they are constantly adding to their collections. Iris Bornmülleri, an exquisite little species that is now becoming talked about, was in flower with them in the open ground in the middle of February. It grows but 3 inches high, and has flowers of a clear buttercup yellow—beyond question a beautiful gem that must be in the collection of everyone making a specialty of this valuable family of hardy flowers. Another useful little species flowering at the same time was Kolpakowskiana, growing 4 inches high, standard lilac, falls brown, with yellow centre. Iris reticulata is, of course, well known. Very large quantities of this sweet and beautiful flower are cultivated, and there was a grand display of it at the time of my visit.

It would be unseasonable at this date to dwell on the many interesting flowers that were open then, but it may be said that there are few periods of the year when something would not be found on this farm to repay a visit. Herein lies the difference between it and the establishments that surround it. These growing acres of Hyacinths, Tulips, Crocuses, and Scillas to supply the English trade, and dealing but little in choicer plants, are flooded with colour for a few weeks, and the display of bloom is unsurpassed in richness and diversity; when, however, this marvellous flush of beauty has passed the annual scene has ended, the curtain falls, and the quiet routine of culture goes on. In the great retail establishments, the home of bulbous and tuberous flowers innumerable, the display is uninterrupted during the greater part of the year. In Messrs. Ant. Roozen's 60 acres of flowers the great families of Irises, Gladioli, Liliiums, and others are in themselves a source of deep interest from the number and merit of the species and varieties represented, while Anemones, Crocus and Tulip species, Ranunculuses, Narcissi, Cyclanens, Begonias, Hellebores, Pæonies, and other equally important plants are represented largely. No visitor to Haarlem should return without passing by the canal side to Overveen, a short walk, in which it will be ample to mention the name of Ant. Roozen should any doubts as to the route arise. The present head of the firm, a man of remarkable business ability, is full of courtesy to visitors interested in his flowers. He is not displeased if a foray among the acres of flower beds is followed by a request to inspect the new warehouses. These have a storing capacity for bulbs of many thousands of square feet, are fitted with every mechanical aid to drying, cleaning, and packing, even to a type case and press for printing the labels for the bulbs, all of which is done on the premises, and the inevitable canal close by affords facilities for the conveyance of goods by means of barges. Although not a part

of the flower lover's object in paying his visit, he cannot help being interested in those splendid buildings, so necessary to the preparation and distribution of the bulbs, tubers, and roots grown and sold in such enormous numbers by this old-established firm.

In another issue a few final remarks will be devoted to one or two other interesting farms devoted to bulb culture in the neighbourhood of Haarlem.—W. P. WRIGHT.

(To be continued.)

CYTISUS SCOPARIUS VAR. ANDREANUS.

NEW varieties of flowering shrubs are far too scarce, and when novelties like that now under notice are meritorious in an exceptional



FIG. 64.—CYTISUS SCOPARIUS VAR. ANDREANUS.

degree they are sure to become favourites. Few plants are so well known as the common Broom, for both here and on the Continent it is very abundant, and its bright golden flowers are produced in such profusion as to render the plant extremely beautiful. It does not vary much, however, except in the size of the flowers, and some trifling differences may be noticed in the shade of yellow, but the variety represented in fig. 64 must have been a great surprise to its finder, M. André. The flowers are about the ordinary size, the colour being a bright yellow with the exception of the "alæ" or "wings," which are of a rich reddish brown, contrasting admirably with the other portion of the flower. Being equally free in growth and flowering with the typical Broom, it cannot fail to be useful, and the stock seems to be plentiful, as it has been mostly increased by grafting. The original

plant was found in Normandy, it has been sent out by MM. Croux et fils, and is now in the hands of most English nurserymen. Certificates have been recently awarded for it at the Crystal Palace, the Drill Hall, and elsewhere.



ROSES UNDER GLASS.

It is by many stated that mere sun heat will do Roses under glass no harm, and that shading is not necessary for them. In view of the above assertions I want "our Journal's" advice as to how to prevent Roses under glass being forced at such a rapid pace that they have not time to grow half their proper size, but rushed into openness, and then withered up as rapidly—completely wasted in fact, and this in spite of wet paths, surface of beds, &c.; in fact, the atmosphere kept charged full with moisture. During several days this week the temperature has risen up to 110° Fahr. What should be done in such case? What kind of shading, or what means can be practically and advisedly adopted to prevent such waste and destruction?—S. S.

W. A. RICHARDSON.

THIS Rose I have no doubt will bear cutting down, at the same time I do not think it needful unless it is in a house where room and light are wanted for other plants. There is one here that covers 10 feet by 10 on a south wall. Last year it bloomed very freely, but sent up no young shoots from the base. To induce it to do so I cut out several old stems and all the flower shoots close to the main branches, with the result of plenty of wood and another crop of blooms equal to the first, and of a deeper colour. I was afraid the two crops would weaken the plant, but such is not the case. There is now as many blooms as could be wished just opening. I have not been successful with it as a standard. I am trying it on the back wall of a three-quarter span house, but I think it is more suited for outside walls or pillars. It is a Rose that takes most people's fancy, although some Rose critics have not a good word for it.

LA PACTOLE.

This creamy white variety makes a good companion to the above. It is a robust grower on standards, very free flowering, and the blooms are useful for small vases. It must not be pruned, removing some of the old shoots to keep it in shape. I am not certain it will prove quite hardy in all situations, owing to the strong shoots it makes. It is not much grown, only a few firms offer it.—J. M., Bath.

CULTIVATION OF THE POTATO IN JERSEY.

(Continued from page 421.)

PLANTING.

THE time of planting varies according to the sorts grown and the situation, for although the island of Jersey is only twelve miles long by six wide, the climate varies considerably, there being fully three weeks' difference between the lifting of the crops in places not more than three miles apart. In the most sheltered and early places planting begins about the second week in January, but the greater portion is planted between the last week in February and the last week in March. It is seldom that many are planted after that time, unless it has been a wet and late spring. The planting is invariably done with the spade; seldom is the plough used for planting, even by the largest growers. In order that they may be planted with regularity the line is used. Close planting is the rule, but it varies according to the sorts, also the ground. On light soils Myatt's Kidneys are planted, not more than 12 inches apart from row to row, and 6 to 8 inches apart in the rows, but on the stronger and richer ground the same sort is planted 14 to 16 inches from row to row. The stronger growing sorts, such as Jersey Flukes, Kingsbridge Flukes, and Royal Jersey Flukes, are given a little more space, but never more than 18 inches apart, and 10 inches in the rows. The planting is done by gangs of men, boys, women, and girls. As the work of planting has to be done in a short time, all turn out and help, for at this time of the year there are not so many Frenchmen on the island as at lifting time. It is quite a common thing for the schools to be closed during the planting season. The rule in planting is to work in gangs of three in number, a man, a boy, and a girl, but here the women very often take the place of men in the field, and some of them can beat the men before half the day is over if they have to keep up with them when they are intent on work. The work of planting proceeds with rapidity when once begun. One of the gang turns out the drill with the spade, another spreads the guano in the

drills, another plants the Potatoes. The sets are covered with about 2 inches of soil as the work proceeds. When the planting is finished the ground is at once harrowed over with a fine harrow, it not being safe to leave this portion of the work many days after planting, for often the Potatoes are above ground in five or six days even early in March. This may seem rather quick to many people at that time of the year, but I have planted Potatoes and forked between the rows ready for moulding up within fifteen days in the month of March. I may here remark that it is at the time of planting that the great advantage of having the sets in boxes is seen. There being no picking or sorting to be done, one has only to pick up a box as they would a basket and place the sets in the drills. Misses or blanks are almost unknown. It is quite a common thing to see a field of Potatoes in Jersey that has not a single miss set in it.

AFTER WORK.

Owing to the great depth the ground is ploughed, it is as a rule free from weeds, and when the Potatoes are well above the ground there is not much hoeing to do to kill weeds. The first work, therefore, is to fork between the rows in readiness for the earthing up, so as to have the ground as light and friable as possible. Some people use a small scarifier instead of the fork for this work, but owing to the blades of the scarifier being liable to cut the roots, most people have given it up, and use a crook to do the work with. The crook is simply a four-prong fork with a long straight handle, with the prongs turned over like a draw hoe. This is a light and useful tool, and anyone can do twice as much work as they can with an ordinary fork in working between the rows of Potatoes or any other crop. When the forking between the rows is finished no time is lost in getting them moulded up, so as not to disturb the roots when in full growth. No time has to be lost in this work, for it is really surprising how rapidly they grow. I may here say that we have in Jersey what is called good growing days, and it is a marvel how things grow on these days. It is quite common for the Potatoes to make a growth of 3 inches in a day. From the time of earthing to lifting the crop little weeding is done. Only when large weeds are likely to seed they are pulled out by hand, as the Jersey farmers strongly object to the Potatoes being knocked about after they are earthed.

LIFTING THE CROP.

From the earthing to lifting the crop may be said to be the slack time of the year with the farmer, as nearly all their ground is under Potatoes. Some of them grow no corn, and many of them but little hay. Much hay and straw is imported yearly from France, therefore they endeavour to have all in readiness for the work of lifting. All vans and harness are put in good order, and the horses are given a good rest.

In the earliest parts of the island lifting begins about the 1st of May, but sometimes it is about the 10th, even in the most favoured spots, and with the earliest sorts. On the exposed ground along the top of the island it is generally about the end of May before digging commences, but by the 15th of June the season may be said to be in full swing all over the island. At this time it is all Potatoes, and nothing but Potatoes. It is a sight once seen never to be forgotten. When once anyone is clear of the town of St. Heliers—and he has to be a good driver to thread his way amongst the vanloads of Potatoes, and get clear out with all his wheels on—he cannot drive 100 yards anywhere in the island without having diggers in view. It is impossible to get the crop lifted in the short time that it has to be done in with the ordinary Jersey labourer. At this time many of the poorest French labourers come to Jersey for the Potato digging, and their one object is to get all the money they can to take back to France, and spend as little as they can while in Jersey. Few of them ever see a bed while on the island. Men, women, and children sleep in sheds and stables on straw, in a way that would not be allowed in England, but they are good workers, and that is all that is wanted for the short time they are here, as they are not allowed to stay after the Potato season is over. Most of them come over in open boats, but they are not allowed to land unless they have provided themselves with a pass to take them back again. The usual mode of working in lifting the crop is for a man or woman to dig with a fork, and a boy or girl picks up the Potatoes and lays them in rows and throws the haul in heaps. When enough has been dug for a load, they are sorted in two sizes and sent to market. The bulk of the crop is sold in Jersey to English merchants, who come over and export them to England. Some are sent to France, and I have known ships come from America for a cargo. Some of the growers pack and export their crop themselves, but it is the exception rather than the

rule, for the Jersey people like to have the money before their produce goes out of their sight, and there is nothing they dislike so much as risk; the result is that the merchants get the produce at their own price, and that is often below the real value.

REALISATION.

After all the trouble and expense that has been given to growing the crop, it will be readily conceded that the realisation ought to be good, and during the first few weeks of the season it is so, but during the last few years, by the time all the growers are in full swing digging, the supply has been greater than the demand, and the result has been a serious loss to many of the farmers in the latest parts of the island. When the crop is allowed to remain in the ground until nearly full grown the yield is from 14 to 18 tons per English acre, but if lifted before the yield is nothing like so good. The fact is many people begin to dig too soon, their one object being to have their crop off the ground in order to have the second crop in, and also to obtain all they can into the market before the English growers. Sometimes 1500 tons of Potatoes are sent to England from Jersey in one day in the height of the season. I have known crops realise £120 per acre, and I have known one case where a farmer made £90 per acre for all the ground he had under Potatoes. Of course these are exceptional cases, but if the crop is good and early the price realised always leaves a good profit to the grower. During the first ten or fifteen days the prices realised vary from £25 to £30 per ton, but not more than from 5 to 10 tons per day are dug at this time, and these are generally dug from small plots on warm banks and in front of south walls, also on small patches on the cliffs quite close to the sea, but when digging begins in the fields the prices soon come down, as the following price list and return of exports will show:—

The Potato export trade statistics for Jersey, 1889, for the weeks ending—

	Tons.	Rate per Ton.	Total Value.
May 25th.....	500	£17 6 8	£8,666 13 4
June 1st	2365	11 1 0	26,133 5 0
„ 8th	5360	6 14 4	36,001 6 8
„ 15th.....	7395	6 18 8	51,272 0 0
„ 22nd.....	9590	5 17 0	56,101 10 0
„ 29th.....	9800	3 5 0	31,850 0 0
July 6th.....	7650	3 8 0	26,010 0 0
„ 13th.....	4970	2 18 6	14,537 5 0
„ 20th.....	1875	1 19 0	3,656 5 0
„ 27th.....	470	2 12 0	1,222 0 0
Aug. 3rd.....	190	2 12 0	494 0 0
„ 7th.....	45	2 12 0	117 0 0
In bulk per vessels			
July 10th to 20th	2490	3 5 0	8,092 10 0
Total tons	52,700	Total value	£264,153 15 0

From the above it will be seen that the bulk of the crop is lifted and sold in eight weeks, but it does not by any means represent the total value of the entire crop, nor does it represent all that is exported. The first two weeks when the highest price is made are left out. Then there is the produce grown under glass, and what is sold and consumed on the island by 60,000 people and many thousands of visitors, which will bring the total value to not less than £400,000, and the entire crop to not less than 75,000 tons. I must conclude, for though I have gone more fully into the subject than I intended there yet remains much more to be said. I need only mention that if anyone wishes to see how not only Potatoes grow in Jersey but how other crops grow also, the best thing they can do is to do as I have done, go and see.

I would just like to say here that plots of ground are planted with Potatoes in every conceivable place—warm sheltered nooks near plantations and on sunny slopes where it must be almost impossible to stand and dig the ground, which only shows how eager they are to utilise every piece of land. I saw several plots of Potatoes in full bloom, and those were the second crop of Potatoes on the same ground that year. I also saw Barley in the ear sown after Potatoes had been lifted.

CULTURE UNDER GLASS.

In order to have fine early Potatoes, early planting must be resorted to, for I find that, other things being equal, much finer crops can be produced in a given time by early than late planting. No fire heat is required in Jersey in order to grow the Potato to perfection in winter. Much glass is devoted to the crop after Grapes and Tomatoes are over. I have known Mr. Bashford have from three to four acres under glass at one time, and he informs me that he has grown the crops in the same houses six years in succession without any deterioration of the crop by changing the manure each year. The seed for indoor planting should

be lifted and set up in boxes not later than the end of July, in order to get them well sprouted by October. Only the crown sprout is retained, and this is sturdy and strong. The best time to plant is from the end of October to the end of November. One house I planted on the 15th November has turned out a really fine crop. The following dates will show you the progress they made. Planted November 15th; showing through the ground November 28th; all well above ground, forked between the rows, December 3rd; earthed up December 24th; crop lifted the last week in February. This was one of the finest crops I ever saw. Many of the Potatoes were 4 inches long, and of first-class quality. The work amongst the crop is done just the same as in the open ground, with the exception of watering. The ground should be in nice order at the time of planting, not too wet or too dry, for if watering has to be resorted to before they are above ground it is apt to rot the sprouts. The prices realised by our crop this spring were 1s. per lb. in February, 10d. during the first fifteen days in March, and 8d. to the end of March.—HERBERT PARKER, Jersey.

THE CARNATION.

(Continued from page 423.)

CALENDAR.

January.—Perpetual plants that are coming into bloom should be fed with liquid manure. Keep a little heat circulating in the pipes to keep up the required temperature, and give air on all favourable occasions. Go over the plants every morning, and pick off all decayed petals and foliage, to give a tidy appearance and prevent damp collecting, keeping all flower stems neatly staked and tied up. Propagation should commence by layering or cuttings, following the directions before given. Look to those rooted in the autumn; see that they do not suffer from water. Should any green appear on the surface stir the soil with a pointed stick, or scrape it off with a label. Keep a sharp look out for green fly and mildew; fumigate with tobacco for the former rather gently two or three nights in succession, using flowers of sulphur for the latter. Give attention to those varieties in cold frames. Stir the surface of the soil if necessary, and should damp weather prevail, take remedial measures against diseases, such as mildew and spot, and take the same precaution with those outside.

February.—For perpetuals in bloom follow on the same directions as given for last month, except that liquid manure should be withheld when fully out, and any plants that have finished flowering may be removed to cold frames, also those used for layering. See that the layers are kept moist, and no damping off with the cuttings. Towards the end of the month, should any be rooted, pot them off into small pots. Plants in cold frames, if the weather is open, will require a little water, and should there be any gentle showers coming from the south they may have the benefit of them for about half an hour.

March.—Perpetuals that are blooming will now begin to take more water. Green fly will perhaps be more troublesome this month, and should be kept well in check. Remove any plants having their blooms fully expanded to prevent damage by the smoke, and should there be any fly on them dust with tobacco powder, or remove it with a soft brush. Shade from the sun any flowers fully out. Pay attention to the requirements of those plants potted last month, as to watering, &c. Layers and cuttings started in January should now be rooted. If so, pot them off and remove them to cooler quarters. Summer flowering varieties, if the weather be favourable, should now be re-potted. Be very cautious as regards watering for a few weeks after, and only keep the sashes over them to protect from rain and frost.

April.—Shading should now be afforded generally to perpetuals in flower during the hottest part of the day, giving the same attention as advised for last month as to watering, and keeping them cool by giving all the air possible. Summer flowering varieties, if not potted last month, should be done at once. Seeds should now be sown and plunged in bottom heat. Plants wintered outside, and others intended for bedding, should now be planted where they are intended to flower, taking advantage of the weather when the soil is in good workable order. If dry they should have a watering after planting.

May.—Blooms of the perpetuals will now be getting scarce. All plants that are over may be removed outside and kept in pots or planted out, to furnish layers and cuttings when required, keeping those that are in bloom as cool as possible and shaded. Watering will be the chief attention needed, besides watching for insects. Summer flowering varieties should be staked to prevent damage from the wind, as by this time they can be stood outside on ashes or boards.

Prick out seedlings into pans or boxes, and harden off prior to planting out.

June.—All old plants of the perpetual varieties intended to be planted out should be done at once. The earlier plants should have their final potting. Summer varieties will now begin to show their buds. All these should be neatly staked, as they will be sufficiently advanced to decide the length. Attention should be given to slitting and tying the calyx should any require it. As the flowers expand remove to the conservatory or any structure intended for their reception, and any left outside should be protected from the rain. Plant out seedlings in well prepared beds or borders. Manure water can be given to those in pots if well rooted. Keep a sharp look out for earwigs, grubs, green fly, &c. Plants bedded out should also be staked and generally attended to. Should the weather be dry they should be kept well watered to help them to expand their blooms.

July.—Perpetuals in pots: Watering, staking, and topping will be the general attention they will require this month, besides giving the last shift to the later batch. Cuttings should be taken from the old plants in the manner previously described. Summer varieties: Follow on the rule given for the preceding month as regards their general wants, besides attending to cuttings as above. Fertilisation should also be done if any inclination is apparent. Plants in beds should be looked after for watering and tying; this will be their chief requirement, besides having an eye on them in case of any pest. Any seedlings planted out the previous year can be looked over, all worthless ones pulled out, the rest marked according to their colour and merit.

August.—Perpetuals in pots: Discontinue topping those required to flower the following month from the beginning of the present. Carefully attend to their wants as watering, training, &c. Manure water might now be commenced with, also soot water if needed. Start layering if not already done last month, and continue until finished. Look to cuttings put in last month. Gradually expose and pot off any that are rooted. This would also apply to summer varieties in pots, beds, or borders as regards layering, removing all plants in pots into the open air when layered, pinching off all dead blossoms and cutting down the stems as they go out of flower. Carefully watch and gather all seed pods when sufficiently ripened, and put on a piece of paper near the glass to finish off.

September.—Layering of all varieties should be finished up at once if any have been left so late. Preparations can be made in getting the Perpetuals to where they are intended to remain and flower throughout the winter and following spring, which should not be left later than the middle of the month. See that the pots are washed and all plants cleaned before housing, giving abundance of air after they are in. Those coming into bloom should be treated according to their requirements. Pot off all layers and cuttings that are rooted, and the above variety should be in their winter quarters about the above date. The summer flowering varieties should also be potted off; these might be left until next month before taken inside. Look after seed as advised last month.

October.—All plants of perpetuals both flowering and newly potted ones should be comfortably settled in their new quarters, giving the former manure and soot water occasionally, guarding against all insect pests and diseases, tying up all shoots as they require it. The latter must be watered very cautiously, giving plenty of air in favourable weather. Summer varieties if not in cold frames where intended to be wintered should not be delayed later than the middle of the month, keeping each sort separate by itself; one label would suffice for each variety, putting a different number to each sort, and a piece of lath on label in every pot with the number on corresponding to the label. Besides giving water, if necessary, very little else will be needed, giving air by keeping the lights off as much as possible. If accommodation cannot be afforded for all under cover, the layers of some of the hardiest sorts might be left outside in the ground.

November.—The watering of perpetuals in flower should be done in the morning, taking care not to spill any, keeping a free circulation of air, and using a little artificial heat occasionally in dull weather to insure against mildew, and keeping a dry healthy atmosphere. Pick off all decayed foliage and petals, and keep all shoots tied up, and look sharp after green fly. Those in small pots should have much about the same atmosphere as above; water very sparingly, and keep the same look out for insects. Besides airing and looking to the surface of the soil to keep any green from collecting on it to those in cold frames will meet about all their requirements. Protection should be given to plants in the open ground in case of bad weather.

December.—The days being very short this month there is conse-

quently less light; all the plants will appear to be on the standstill. Perpetuals that are in flower will require the greatest care as to watering and airing, only giving the former when really needed—in fact, it would be safest to be on the dry side during this month, giving air, with a little heat circulating in the pipes, whenever there is the slightest chance, paying the same attention as advised last month as to picking off all decayed foliage and blooms, constantly watching for insects and disease. Follow the same principles as above for airing the autumn-rooted plants of the above variety, watering only if really necessary. Water should be withheld altogether from those in cold frames. Keep all decayed foliage picked off, stir the surface of the soil if required, cover up in sharp weather, look out for diseases prevalent during the winter.—DAVID COOPER.



THE WEATHER.—"B. D." writes from Perthshire—"May 19th-26th. Dull weather marked the first three days of the week, the three following days were bright and warm. On the 22nd the thermometer stood at 72° in the shade. On Sunday a cold, hard east wind made a somewhat dull day rather unpleasant, and during last night the lowest temperature for the week was reached, 39°. The foliage of trees is now very dense; heavy Apple blossom everywhere in this quarter; Lilac, Laburnum and Hawthorn approaching luxuriant bloom; Broom laden with flower." In the south it has been warm and bright generally.

— **GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—We are glad to observe from a further list of supporters of the Institution that contributions are steadily flowing in. We hope the flow will continue, and that the Chairman of the anniversary dinner, Mr. H. J. Veitch, will have a good sum to announce for the Institution on June 12th.

— **EARLY STRAWBERRIES.**—A daily paper says seven tons of Strawberries were received at Southampton from St. Malo last Friday, with the information that the crop is an abundant one in the west of France, and heavy consignments may be expected.

— **LAXTON'S NOBLE STRAWBERRY.**—This I find disappointing grown in the same house with Sir J. Paxton. Noble ripened a week the earlier, with good crop, size, and colour, but flavourless and dry. "Not suitable for growing under glass" is the verdict here.—J. E.

— **BIRDS' NESTS IN KALE.**—Mr. E. W. Claydon, Tanhurst, Dorking, writes, "A chaffinch and a hedge sparrow have built their nests in some of Suttons' Branching Kale now growing in our garden. The chaffinch's nest has eggs; the sparrow's nest is full of young birds."

— **MR. HARTLAND'S DAFFODIL GROUNDS, CORK.**—We have been informed that Mr. W. B. Hartland has been obliged, by a clause in his lease, to surrender his term of Temple Hill, so that all transactions are now conducted at Ard-Cairn, Cork. The position is sheltered, and the soil a deep hazel loam resting on limestone, and well adapted for the cultivation of Tulips in addition to Daffodils.

— **HINTS IN NEPENTHES CULTURE.**—Strong well-established plants that were pinched early in the year may have made growths that require pinching again. To obtain a constant supply of pitchers the shoots should be stopped when they have made four or five joints. They start freely, and the plants are kept bushy in this way. Shade the plants from bright sunshine or the foliage will soon turn brown. Give a bountiful supply of water, and syringe the plants freely at least twice daily. If infested with thrips, syringe them thoroughly with a solution of tobacco water.—B.

— **PLANTS OF EUPHORBIA JACQUINLEFLORA** that have shoots 3 inches long should be removed to a cool house for a fortnight to harden them before inserting the growths. If they are taken from plants in a warm moist atmosphere they are certain to suffer from damp. After they have been hardened, remove them with a sharp knife just where they issue from the old wood. Insert them in sand and cover them with a bellglass. By this treatment very few will damp

if a temperature of 65° can be given. The old plants should be removed again into heat until other cuttings are ready.—J. T.

— **WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.**—This young Society has just completed its first session. Meetings have been held fortnightly since last December, and have been well attended throughout. During the next four months the meetings will be held monthly. On May 6th a meeting was held, presided over by Mr. W. M. Alexander. A paper was read on "Poinsettia Culture," by Mr. C. Anderson. On the 20th inst. there was a large attendance, the Rev. A. A. E. W. Lofts in the chair. Mr. J. B. Riding read a paper on "Plants for Decorative Purposes." A lengthy discussion followed, to which the essayist briefly replied. The meeting terminated with the customary votes of thanks.

— **AZALEA MOLLIS AS A HARDY SHRUB.**—In the pleasure ground borders at Highbury, near Birmingham, the residence of the Right Hon. Joseph Chamberlain, M.P., some beautiful varieties of *Azalea mollis* are now in full bloom, and are objects of great beauty. The value of *A. mollis* has long since been recognised for forcing, and if instead of turning the plants out of doors as soon as they are out of flower they were kept in an early vinery or some house with a medium temperature, so as to promote early and vigorous growth, then harden it off, failures would be almost impossible. When there are spare plants not wanted for forcing let them be planted out in the borders, and their beauty will soon be seen and appreciated.—W. D.

— **TULIPA CARINATA LUTEA.**—I send flowers of a charming Tulip under the above name. They were grown out of doors, and in full bloom under the fortnight's rain and hail we had during a great portion of May. Their height is 2½ feet, and habit strong. Have you seen this colour before? It would be a great market bloom. Please feel the texture of the petals? A vase of this and *Tulipa Gesneriana*, and leaves of *Epimedium alpinum*, is very beautiful, and by gaslight even more so. I do not see the variety *lutea*, or *Tulipa vitellina*, as figured in a contemporary last December, in any trade lists. The latter has been also very beautiful on my grounds; now out of flower.—W. BAYLOR HARTLAND. [We do not know a Tulip under the above name. *T. carinata* is crimson. The flowers sent are soft canary yellow in colour, and the petals are of great substance. It is beautiful for decoration, and we grow it, and we think correctly, as *T. vitellina*.]

— **SULPHATE OF COPPER AND THE PHYLLOXERA.**—The use of sulphate of copper as a check to the ravages of the phylloxera is reported on by the British Consul at Barcelona. A Committee of the Provincial House of Deputies, it seems, concluded that the poor results so far shown had been due to the employment of an inferior article. Arrangements were made to favour the import of sulphate free of duty, and at a low price; but for a time very little was asked for. According to the Vice-Consul at Tarragona, "the very few proprietors who took the precaution to spray the Vines with a solution of sulphate of copper and slaked lime, before any sign of disease appeared, and continued to apply the prevention all through the growing season at proper intervals, were the only people who gathered a fair quantity of Grapes."

— **THE WAKEFIELD PAXTON SOCIETY.**—At the ordinary meeting of the above Society the President (Mr. H. Oxley) was in the chair, and Mr. W. Pye occupied the vice-chair. There was an average attendance of the members. Mr. W. E. Corden delivered an essay on "The Cultivation and Cross-fertilisation of the Zonal Pelargonium." Mr. Corden has spent many years in studying and working out by experiment this subject, and the facts which he laid before the members—stated in clear and well selected language—were of an exhaustive and practical character. He described minutely the methods he adopts, which, as is well known, have led to a marked advance in the character and variety of this plant and flower. He is well known—not only in Yorkshire, but in other parts of the country—as a very successful hybridiser, and his essay was listened to attentively, and gave much pleasure to the audience. After a long discussion a vote of thanks to the essayist was proposed by Mr. B. F. Glover, seconded by Mr. W. Pye, and supported by several others.

— **TAKING IT EASY ABOUT CATERPILLARS.**—Mr. John Higgins, Pylle, Somerset, writes to the *Daily News*:—"I read with great respect Mr. Charles Whitehead's plan for destroying the coming caterpillar. But syringing my ten acres of Apple trees with a solution of deadly poison—'Paris green' or 'London purple'—was a serious and costly experiment. My orchard swarms with birds which another authority recommends me to destroy. Probably the 'Paris

green' would have settled them. What was an anxious agriculturist to do? I examined very closely the blossom buds of my trees and found them fairly free from insects. The trees are now glorious with healthy bloom, and I have thankfully come to the conclusion that when God Almighty has arranged for an Apple crop the caterpillar must take a back seat along with the late Hessian fly and the Colorado beetle—our earlier frights.—JOHN HIGGINS." Mr. Higgins has cause to be thankful, as many tons of Apples were last year sent from Somersetshire to Herefordshire for cider making in the great Apple and cider county, in which the caterpillar visitation was so great that thousands of trees were entirely denuded of flowers and foliage.

— **NITRATE OF SODA.**—If we put on half the quantity of ordinary manure and sow broadcast 200 lbs. of nitrate of soda per acre in addition, this will be fully equal to a good dressing of the very richest composts, and a great deal cheaper. I say nitrate of soda, because it is not only a cheaper source of nitrogen than sulphate of ammonia or the organic nitrogen in our different fertilisers, but the nitrogen is in just the condition necessary for absorption by the plants. I have used it with great advantage on Peaches, Strawberries, Roses, Currants, Raspberries, Asparagus, Celery plants, Potatoes, Onions, Beets, and nearly all garden crops. For several years we could not raise Peaches. The leaves curled up and turned yellow in June and frequently fell off, and in a year or two the tree was dead. For two years the trees that have had nitrate have shown little or no symptoms of the disease, if disease it is. The leaves had that dark green, luxuriant colour that is the characteristic effect of liberal manuring, and, better than all, we have had fine crops of Peaches.—J. H. (in *The Canadian Horticulturist*.)

— **ROYAL METEOROLOGICAL SOCIETY.**—The usual monthly meeting of this Society was held on the evening of the 21st inst. at 25, Great George Street, Westminster, Mr. Baldwin Latham, F.G.S., President, in the chair. The following papers were read:—1, "Rainfall of the Globe," by Mr. W. B. Tripp, M.Inst.C.E., F.R.Met.Soc. This was a comparative chronological account of some of the principal rainfall records. The earliest record is that of Paris, which commenced in 1689. The English records began in 1726. The rainfall observations in the southern hemisphere do not extend over a very long period; at Adelaide they were commenced in 1839, but they do not go back further than 1866 for New Zealand. The greatest fall in any particular year at the stations given by the author was 160.9 ins. at St. Bernard in 1839, and the least 3 ins. at San Diego in California in 1863. By combining the stations in the northern and southern hemispheres, the author finds that in recent times the years with the highest average rainfall were 1878, 1879, and 1883, and the years with the lowest average were 1854 and 1861. 2, "Mutual Influence of two Pressure Plates upon Each Other, and Comparison of the Pressures upon Small and Large Plates," by Mr. W. H. Dines, B.A., F.R.Met.Soc. 3, "On the Variations of Pressure caused by the Wind Blowing across the Mouth of a Tube," by Mr. W. H. Dines, B.A. F.R.Met.Soc. In these two papers the author gives the results of some experiments on wind pressure, which he has made mostly on a whirling machine at Hershams, Surrey. From these experiments it seems probable that a decrease of pressure per square foot with an increase of size of plate may be taken as a general rule.

— **FRUIT PROSPECTS.**—With the exception of Pears and Plums we have no lack of blossom. I have never, in this district (Durham) seen such a good all-round show. Apples, including the following varieties, are making a splendid display—Keswick Codlin, Lord Suffield, Old Hawthornden, Golden Noble, Golden Pippin, Ecklinville Seedling, Newtown Pippin, Peasgood's Nonesuch, Ribston Pippin, Cox's Orange Pippin, Cockpit, Cellini, Blenheim Pippin, and several newly planted varieties. Siberian Crahs have been loaded with flower. Cherries, May Duke and Morello, have an excellent appearance just now, the former well set and swelling. Apricots are stoning well. Currants and Gooseberries are also looking satisfactory. The latter I have never seen so early and clean. Strawberries are sending up abundance of flowers, and Raspberries are covered with flower buds. I also notice a marked improvement in forest trees, being healthy and floriferous. The Oaks, Sycamores, Chestnuts, Hollies, and many shrubs are flowering better than they have done for some years. Altogether the outlook is promising. Should nothing occur to mar our expectations this will be one of the most fruitful years the present generation has known.—A. B. D.

— **BOURNEMOUTH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.**—The fortnightly meeting of the above

Society was held on Wednesday, May 21st. Mr. G. Rose, gardener, Merlewood, occupied the chair. An excellent paper on the cultivation of the Peach was read by Mr. G. Peel, gardener, Studley. Mr. Peel treated the subject in a practical manner, dealing more particularly with Peach growing outside. A capital discussion followed, and a number of questions asked, which were replied to satisfactorily. Mr. Peel received a hearty vote of thanks for his paper, and a similar compliment was paid to the Chairman for presiding.



FIG. 65.—PHAIUS HYBRIDUS COOKSONI (see page 446).

— IN the year 1886, when Mr. JOHN GARDINER was scientific adviser to the Board of Agriculture of the Bahamas, he was asked by Governor H. A. Blake to prepare a list of the flora of the colony. At the same time a list of the plants of New Providence, prepared some years before by Mr. L. J. K. Brace, was placed at his disposal. With this as a base, Mr. Gardiner set to work, and in due time his task was accomplished. The list, with notes and additions by Prof. Charles S. Dolléy, has now been printed in the Proceedings of the Academy of Natural Sciences of Philadelphia. It is called provisional, as Mr. Gardiner explains in an introductory note, mainly because it is not backed throughout by herbarium specimens.

— MR. GEORGE W. PERRY of Rutland, Vt., writes to *Science* that EUROPEAN FURZE grows in one spot in the island of Nantucket, where it has maintained itself for fifty years. It was introduced by an Irishman, "who was homesick because it did not grow about his cabin as in the old country." Mr. Perry believes it has not spread to any great extent. "It may be interesting to some," he adds, "that the Scotch Heath also is found in one spot in the island, where it has continued for a long time." Mr. George M. Dawson of the Geological Survey of Canada, also writes to our American contemporary about Gorse or Furze in the New World. He says it has for many years been fully naturalised in the southern part of Vancouver Island, where along roadsides and in waste places near Victoria it is very common. The Broom is also abundant in similar situations in the same locality, and "both plants appear to be as much at home as in their native soil."—(*Nature*).

— LEICESTER AND MIDLAND COUNTIES CHRYSANTHEMUM SOCIETY.—The schedule of prizes for the Show of this Society, to be held in the Temperance Hall, Leicester, on November 14th and 15th next, has just been issued, and shows a marked advance and improvement on all previous efforts of the Society. Several new and additional classes are added, including one in which the prizes, 50s., 30s., and 10s., are given by Thos. Brooks, Esq., of Barkby Hall, for twelve blooms distinct, six incurved and six Japs, grown by working men residing within a radius of five miles of Leicester clock tower. A silver cup, value ten guineas, is added to the cash prize of £10 as a first prize in the open class for forty-eight cut flowers; also a second silver cup

given by the tradesmen of Leicester, value £5, is allotted as a first prize for twenty-four blooms in the district class, open to gentlemen's gardeners and amateurs residing within a radius of six miles of the clock tower. Owing to the recent resignation of the late Secretary, Mr. J. Read, a complete reorganisation of the Committee has taken place, and the following officers been appointed:—President, Thos. Wright, Esq., The Hollies, Leicester; Hon. Treasurer, Mr. A. F. Lucas, 8, Lower Hastings Street, Leicester; Hon. Sec., Mr. F. H. Anthony, Church Road, South Knighton; Chairman of Committee, Mr. W. K. Woodcock, Barkby Road Nurseries, Syston, Leicester; Deputy-Chairman, Mr. A. Bridgewater; Secretary, Mr. E. E. Waite, 12, Diseworth Street, Melbourne Road. Mr. J. Burns, F.R.H.S., Curator of the Leicester Abbey Park, has, with the consent of the Parks Committee, kindly promised to decorate the hall on the occasion of the Show, which is being looked forward to with confidence, as likely to be of a far higher order of merit than any the Society have previously held.

— ROSES IN AMERICA.—It is rather a remarkable fact that there is now nowhere in the United States anyone distinguished for a knowledge of cultivated Roses. Rosarians, as they are called in England, are common enough there, and their patient researches and their zeal in gathering and disseminating knowledge about Roses has been of the greatest service in increasing the taste for the cultivation of the queen of flowers. It is hardly conceivable that the Rose does not hold the first place among flowers in the affection of the people of this country. She must still be queen by right and by tradition, although some newer favourites, like the Chrysanthemum, may appear to press her hard for a time. No people in the world buy so many Roses as ours, and although fashion and love of display may have something to do with the great prices often paid for these flowers in winter, a real love of Roses for their own sake is the true reason for their popularity. American florists grow

Roses, especially under glass in winter, to perfection, and the best products of their skill are hardly to be matched anywhere. One can be a good commercial grower of Roses and yet have only a limited knowledge of a comparatively few varieties, and the professional florist from a business point of view need only know how to draw from these the best money returns. What is really needed, however, in the interest of horticulture here is someone with leisure and opportunity to take up and carry on systematically the study of Roses where Parkman and Ellwanger have left the subject. The field is an inviting one. The possibilities of Rose culture in this country are great, and so are the possibilities of improving the various races of the Rose to meet the demands of the different climatic conditions in various parts of the country. What a tempting field California and our Southern States offer to the enthusiastic rosarian! There is much to learn, too, of the possibilities of Rose culture in the trying climates of the Northern States. Certainly there is not now in American horticulture any other field where careful study is so much needed as in that offered by the Rose, and no other where intelligent investigation in the right spirit will find so little competition, or can do more useful work, or earn for the investigator a more agreeable reputation.—(*The American Garden and Florist*.)



CATTLEYA PARTHENIA.

UNDER the above name M. Bleu exhibited a plant in flower at the Paris Show, which attracted the attention of all the orchidists present as one of the most beautiful hybrid Cattleyas yet raised. It will be remembered that M. Bleu flowered a hybrid between *C. intermedia* (amethystina) and *C. Acklandiae* a year or two ago, which was named *C. calumnata*, but this was not found subsequently to possess such distinctive characters as at first thought, though I understand that some of the

seedlings from the same cross were better than others, and one of the best of these was crossed with a good variety of *C. Mossiae*; the result was a fine pod of seeds, and of the seedlings secured the one named above was the first to flower. It is remarkable for the great substance of the flower; the sepals and petals are pure white, much broader than *C. intermedia*, and thick, quite different from *C. Mossiae*. The lip is broad and open in the way of *C. Mossiae*, but most delicately veined, spotted, and suffused with a soft, clear, bright, rosy tint. The plant is of good habit, exactly intermediate between the parents.

ODONTOGLOSSUM (MILTONIA) BLEUI, VAR. SPLENDENS.

Some time ago M. Bleu raised a hybrid between *Odontoglossum* or *Miltonia vexillarium* and *O. Roezli*, which possessed considerable interest as the first produced amongst the *Miltonia* section. It was named and described as a *Miltoniopsis*, which occasioned some

possess considerable historical interest as the first hybrid resulting from artificial crossing amongst the *Odontoglossums*. This is in the collection of Orchids formed by the Baron Edmond de Rothschild at Amand Villiers, Gretz, a few miles from Paris on the Strasburg line. It was secured from a cross effected about five and a half years ago between *O. crispum* and *O. luteo-purpureum*, the former being the seed parent. The seeds were sown when ripe, and several plants were raised, which have steadily progressed until the present year, when the most advanced produced a raceme of seven flowers early in May, and these are now fully expanded, the characters indicating a true combination of the two species named. The pseudo-bulbs are rounder than those of *O. crispum* and more like *O. luteo-purpureum*, the larger being $1\frac{1}{2}$ inch in diameter and depth and flattened, but the other is more conical in form. The leaves are 10 to 12 inches long, and $1\frac{1}{2}$ inch broad, stiff, and bright green. The flowers



FIG. 66.—A SPECIMEN DENDROBIUM AINSWORTHII.

adverse criticism, and it certainly does not seem desirable that such a title should be adopted. Opinions also differ with regard to the application of *Miltonia* to these plants, but as the parents are so generally known as *Odontoglossums*, that is given here. The variety *splendens* is a great improvement upon the one first flowered and possesses much beauty, the soft tint of the flowers being relieved by deep crimson veins at the base of the lip. In the habit of the plant, and in the form of the flowers, the hybrid shows a curious combination of its parents' characters. It was purchased by Messrs. Sander & Co., St. Albans, and exhibited at the Temple Show on Wednesday last.

ODONTOGLOSSUM HYBRIDUM LEROYANUM.

Hybrid Orchids are now numerous in some of the more popular and best known genera, but the artificial production of hybrid *Odontoglossums* has hitherto proved too much for the skill of Orchid cultivators in this country. Seed has been obtained and plants even have been raised, but they have either died or have failed up to the present to produce flowers. A remarkable exception in France is worthy of notice, however, and will always

are $3\frac{1}{2}$ inches across from tip to tip of the petals, and 2 inches from the tip of the upper sepal to the margin of the lip. The sepals and petals are nearly equal, the latter slightly broader; the sepals of a pale yellowish ground tint, most strongly marked at the tips; the petals are whiter, and perhaps will become still more pure. The sepals have each three broad reddish brown bars, these being more clearly defined in the upper one than the two lower. The petals are undulated at the margin, with one large blotch in the centre, two smaller rounded ones at the side, and a few still smaller near the centre of the base. The lip is three-quarters of an inch in diameter, somewhat like *O. luteo-purpureum* in shape, fringed at the edge, white, with one large reddish blotch, and a deeply divided yellow crest at the base on a reddish ground. In general appearance the flowers are very distinct, the sepals and petals being slightly curved forwards.

Baron Edmond de Rothschild specially desires the plant to bear the name of his gardener, M. Leroy; and I was informed that the hybrid will be depicted in an early issue of the "*Reichenbachia*." —L. CASTLE.

PHAIUS HYBRIDUS COOKSONI.

MR. NORMAN COOKSON, Oakwood, Wylam-on-Tyne, has been a most successful raiser of seedling Orchids, and few amateurs have given the same attention to the hybridisation of Orchids as he. I well remember with what astonishment I inspected the large collection of seedlings at Oakwood a few years ago, when the majority were in their infancy. Many have now been added to these, and the result is that about 15,000 seedling plants, chiefly of *Cattleyas*, *Dendrobiums*, and *Cypripediums*, are grown in the collection. Some of these have reached a flowering size, and every year novelties unfold their attractions and become famous in the Orchid world. The crossing has been most carefully conducted, and the experiments undertaken were diversified in the extreme, and the results even up to the present prove what can be accomplished by careful thought and action.

Phaius hybridus Cooksoni was obtained by crossing *Phaius Wallichianum*, a well grown tall growing species, with *P. tuberosus*, a remarkable Orchid, which though not so familiar an occupant of our gardens, is yet so distinct in floral form and colouring that it has attracted much attention. The flower of *P. Wallichii* was fertilised on March 26th, 1887, the fruit ripened slowly, and the seed was sown on December 12th of the same year. In the season of 1888 the first pseudo-bulb and growth were formed, in 1889 a second pseudo-bulb was produced, and from this came the spike which expanded early in the spring of the present year. Mr. Cookson writes as follows respecting the hybrid—"About half the plants have flowered, and the remainder will flower next year on the third pseudo-bulb, but of course they will be stronger, and consequently better. I have again crossed *P. Cooksoni* with *P. tuberosus* so as to intensify the characteristics of the last named, and yet hope to retain the wonderful robustness of *P. Cooksoni*."

The hybrid presents a most interesting combination of the characters of the two parents. It is stronger in habit than *P. tuberosus*, but much less so than *P. Wallichii*, while the flowers present a peculiar combination of colours. The lip is of a purplish bronze tint, quite unique; the sepals and petals also are tinted with pink, and have a brownish suffusion, evidently obtained from *P. Wallichii*. The plant was shown and certificated by the Royal Horticultural Society's Orchid Committee on March 11th of the present year, and it has been placed in the hands of Messrs. F. Sander & Co., St. Albans, for distribution.

DENDROBIUM AINSWORTHII.

THE engraving on the preceding page is from a photograph supplied to us by Mr. John Wilson, gardener to J. E. Reynolds, Esq., Sandfield Park, West Derby, Liverpool. The plant was purchased in 1882 from Mr. B. S. Williams, and had then two small pseudo-bulbs 4 inches long. This year it was 3 feet in diameter, with sixteen leads, varying in length from 2 feet to 2½ feet, and produced 457 flowers. The plant has been grown in a small stove, having a temperature of about 70° to 85° in the summer months. Diluted cow manure was given when the young growths were about a foot long, and the plant was eventually placed in a late vinery to ripen, remaining there until flower buds appeared in the spring. It has recently been transferred from its 14-inch square basket to an 18-inch pot, and is promising well for another year, some of the twenty-two young growths being now 2 feet long. It is an admirably grown specimen, and both Mr. Reynolds and his gardener have reason to be satisfied with the results achieved.

MR. SMEE'S ORCHIDS.

Mr. Smee's garden at Hackbridge, near Wallington, is very delightful at this season of the year by its Fern dells, embowered streams, and wealth of flowering shrubs. The glass structures are also rich in many fine forms of Orchids. The *Cattleya* house, 36 by 18 feet, probably contains a choicer assortment of *C. Mossiae* varieties than can be seen in the same space elsewhere, and the flowers are remarkable by their substance and brightness. Mrs. Smee's variety with twenty-one handsome flowers is very beautiful, as is *C. M. Rothschildianum* with thirteen. The varieties *Southgatei* and *Reineckiana* are very rich, and some unnamed forms of recent importations highly meritorious. Some of the stronger plants produced four flowers on a stem, and *C. Mendeli* five. A recently acquired form of this is of striking excellence. *C. Schroederæ* attracts by its beauty and fragrance. It is esteemed as a long-lasting flower, and a welcome link between the *Trianae* and *Mossiae*. About sixty plants are flowering in the house, and nothing approaching an inferior variety can be found among them.

In other houses are several plants of *Odontoglossum Alexandræ* bearing flowers of unusual substance. One handsome spike was worn by Mrs. Smee at two flower exhausting evening parties in

London, then kept fresh another week in her drawing room. This is the effect of good management under cool treatment. In the same house several plants of the beautiful waxy yellow *Cattleya citrina* are in the best of condition, one having two flowers on a stem. Fix the plants as you may, the growths and flowers will turn directly downwards, or perish in the attempt. The plants are mostly on blocks, but the best is in a saucer. *Masdevallias* are in force, *M. rosea* being very floriferous and attractive, as are varieties of *M. conchiflora*, *M. Harryana*, and others, with such curios as *M. Chimæra* and the miniature *M. Simula*. In a long, unconventional, and very enjoyable house, half occupied with luxuriant Ferns, is a pleasing association of Orchids, including many *Cypripediums*, and the not common *Ornithocephalus grandiflorus*, the flowers of which have been two months in opening; the Frog Orchid, *Oncidium raniferum*, covered with flower, and *Odontoglossum Pescatorei magnificum*, bought at the Temple Show last year, and worthy of its distinctive appellation.

The mention of the Temple Show reminds that Mr. Smee could have sent a larger and even a better assortment of Orchids than he furnished last year, but instead of doing so he kept them at home to be enjoyed by visitors to his garden, which was open free to the public for a week, commencing on the opening day of the Exhibition. When the privilege has been previously accorded, 8000 persons have availed themselves of it in the course of the week, and Mr. G. W. Cummins, the gardener, is not in the habit of keeping the collecting boxes of the Gardeners' Orphan Fund out of sight on these occasions.

MIGNONETTE IN WINTER.

A GOOD supply of Mignonette, either for cutting or to produce a display in a growing state during the months of January, February, and March, is much appreciated. The perfume seems more powerful at that time than during the summer months from plants growing out of doors in the borders. The most common method of cultivating Mignonette to flower during the winter and early spring months is by sowing several seeds in 4 and 6-inch pots in the month of August. This results in handsome little plants, suitable for vase decoration or for furnishing the side stages of the conservatory. Such a method is not the best for producing a large quantity of flowers for cutting. For some years I have practised what I consider a much better plan for ensuring a larger number of spikes in the same extent of space and with a minimum of trouble.

We grow the plants singly, in pots varying in size from 6 inches to 10 inches, inside measurement. From one plant in the latter size we had at one time 200 fully expanded spikes, the plant measuring 2 feet in diameter and nearly as much in height. Plants growing in 6-inch or 8-inch pots, although useful, do not produce nearly such fine spikes. The foliage, too, is smaller, and if the plants are allowed to become dry at the roots they quickly assume a pale colour which spoils their appearance. It is indeed surprising the difference in the size and quality of the spikes grown from large pots compared with those from plants in a smaller size. The seed is sown from the middle to the end of May in sandy soil in 2½-inch pots (thumbs), two or three seeds in each. The pots are stood in a cold frame placed on the north side of a wall, where the trouble of shading the frame is dispensed with. The soil in the pots does not dry nearly so quick either as it would if the sun could shine upon the frame, even if it were shaded with mats. Directly the seedlings can be handled all are drawn out but the strongest, and when this is 3 inches high the point of growth is removed to induce side branches to form and lay the foundation of the future bush. When the pots are full of roots the plants are shifted into larger; 4-inch are best when the largest size (10-inch) are intended for flowering the plants in. From the 4-inch they go into 7-inch pots, and then into the final size. For the first shift the compost consists of two parts loam to one of leaf mould, with a free admixture of sharp coarse sand. The plant is supported by a neat stake, and as the side branches grow they are tied out to induce strength and prevent crowding. After each growth of 3 inches the points of the shoots are pinched out until it is time to allow the flower spikes to advance. This is varied so as to secure a succession. Six weeks are allowed from the time of the last pinching of the shoots until the plants are in flower.

The compost for the final shift is composed of three parts fibrous loam, one of partly decayed horse manure, half a part leaves, with a light sprinkling of bone meal or dissolved bones, and plenty of coarse silver sand if the loam is inclined to be heavy. Press the soil into the pots firmly, but not too tight; allow ample space for water, as abundance is required at the roots when growth is active. Continue to spread out the branches as fast as they grow, so that each obtains a share of light and air; vigorously

syringe the foliage every afternoon, and keep the ashes moist on which the plants stand. This prevents the attack and spread of red spider upon the foliage, which is the only insect pest Mignonette is subject to, and this only is caused by neglect in supplying the roots sufficiently with water during the hot days in summer. If the plants occupy the frame behind a north wall until the end of August, to save the trouble of applying shade, they should be removed to a frame facing south early in September, as the nights are by that time becoming cool. Abundance of air should be admitted to the plants to maintain a stocky growth.

At the end of September a position near the glass in a cool house will be the best for their welfare. Syringing should be discontinued as the nights grow colder, and the plants kept as cool as possible. When the large pots are full of roots weak liquid manure from the farmyard tank is applied alternately with clear water as needed. Artificial manures, such as Standen's or Clay's fertiliser, sprinkled on the surface and watered in once a week do good. The plants are benefited by a top-dressing of turfy loam and dissolved bones mixed together, two parts of the former to one of the latter. Too much water must not be given to the roots the last three months of the year, as anything like stagnation quickly makes itself felt in unhealthy looking foliage. A temperature of not less than 40° is provided during the winter, and a position as near to the glass as possible secured to prevent the growth being drawn up weakly. If incipient seed pods are clipped off the lower part of the flower spikes with a pair of scissors the flowering season will be lengthened considerably. In cutting the flowers, if those are selected which are partly expanded they will open in water, the spikes increasing in length, and last fresh ten days at least.

Mignonette varies considerably both in the form of growth and robustness, but when the plants are grown strongly and the main branches staked little support beyond looping up outside stems will be required, the spikes of bloom standing erect. It is only the outer which need assistance to keep them from falling. The best variety I have found for the method of cultivation described is that known as Miles' Spiral; the flower spikes may not be quite so broad as Machet, but they are much longer, exceedingly sweet, and the growth is branching and strong.—E. M. S.

MICE.

THE gardener has many difficulties to contend with and many enemies to encounter and overcome before he can make sure of satisfactory crops and insure their preservation for use. Mice are troublesome, eating seeds, bulbs, seedlings, barking the stems of plants and trees, gnawing the roots; moreover, they are particularly fond of fruit—the seeds of Strawberries and the juice of Grapes.

There are three kinds especially injurious to garden crops—namely, the house or common mouse (*Mus domesticus*), the short-tailed field vole (*Arvicola arvalis*), and the long-tailed field mouse (*Mus sylvaticus*). All three are very common, but not equally so. Everybody is acquainted with the house mouse, which has a longish head, shortish body and rather long tail tapering to the tip, the colour dirty brown or fawn. It is a more intelligent animal than the other—more wary of the cat, tasty even in matter of cheese, and discriminating in the quality of Grapes. It is most troublesome in and about buildings, seed and fruit rooms, root houses, Mushroom houses, sheds, glass structures of all kinds, including pits and frames, Potato pits or heaps, anywhere, yet always with shelter and food at hand. When away from man's conveniences it will burrow; even in gardens it takes to a sort of emigration, seeking fresh fields, burrowing and laying in food against "hard times," but not to anything like the extent of the field mouse. The mouse seems to have learned the advantages of dwelling in community. Away from man it becomes a larger and finer animal, benefiting by the "fresh air of the country."

The short-tailed field mouse or vole is a diminutive water rat-like animal (but not amphibious), short rounded head, thick body, short stumpy tail, short ears, and of a dull reddish brown colour. It resides mostly in grassy places, making runs in meads, woodland glades, lawns, and is particularly destructive in glass structures, eating some plants clean off and barking the stems of others. It appears to like eating Ferns and ruining crops of Strawberries both in the garden and under glass. The creatures nip off the berries and lay them in heaps, the seeds being extracted. The more numerous they are the more do they heap the berries, for when few they eat the seeds of them on the plants. It is an extremely cautious creature, and considering its short legs agile. Whether it is solely herbivorous I do not know; the runs it makes in the grass, and so clearly seen, especially in mossy bottoms, after the clearing away of snow, indicate a search after food of perhaps an animal kind.

The long-tailed field mouse is rather large—*i.e.*, for a mouse, and is easily distinguished from the others by its long legs, long tail tapering to a point, and its longish ears. It has a bouncing run, and seems completely nonplussed when disturbed. Its colour is pale brown, and is a remarkably clean animal. Though destructive I rather like than dislike the creature. Its partiality is for seeds, though varied with

herbage, and it appears to relish Peas and Beans, also haws, heps, and berries. In gardens it is not very common, the vole is much more frequently seen in country than town gardens. The two last, particularly the vole, are allowed in some rural districts to increase to such an extent as to become a plague. Keepers in the plenitude of their wisdom and manifestation of their zeal destroy every creature of the owl, hawk, and weasel kind, whereby rodents are allowed to multiply in excess. Once I had to contend with an invasion of rats, clearly traceable to a pheasantry where the birds were fed. The floor of a late vinery was strewn from end to end with ripe Grapes, part and whole bunches having been cut off as neatly as with a knife. Another time the short-tailed field mouse or vole invaded the Strawberry quarters and cleared away the crop. Access was had over walls 10 to 12 feet high or under their footings 3 feet deep. They piled the Strawberries in heaps, and ruined the crop. How these creatures gain access to shelves in Peach houses seems at times inexplicable.

For the house mouse there is no remedy at all comparable to the cat. Some cats are good mousers, others are not worth anything. The former are rarely seen in country garden establishments, for the simple reason that a cat worth keeping is ever on alert for prey. I have not had a cat for many years, for the simple reason that the keepers killed them as fast as we could rear them. One cat once brought to me thirteen short-tailed field mice within an hour. A cat in a garden is invaluable. Young men keep them in bothies, muck to their credit and the benefit of their employers, but a cat worth anything will poach.

The house mouse will take to cheese before anything. I always keep some steel traps in stock, the small size known to ironmongers as bird traps. All that is necessary is to tie a piece of Stilton or Cheddar cheese crust in position, and set the trap lightly enough to go down when the mouse begins to nibble, in order to effect a catch. A sufficient number of traps duly used leave no excuse for house mice. It is only a matter of a little trouble and timely attention. Kept well oiled they last a long time, and are equally serviceable outdoors or indoors. They can be set almost anywhere. The only place where they fail is where there are cockroaches or crickets which eat off the baits, in which case they are an advantage, as showing the necessity of taking steps to exterminate the cockroaches and crickets by a careful use of phosphor-paste. The mouse traps need no covering. The house mouse has none of the cunning or craft of the rat, but will take the trap bare on a shelf, on a Vine rod, or by side of a Pea row outdoors. The only precaution necessary is to secure it to something with a piece of string. I fasten a piece of tarred string about 18 inches long to each trap, and secure it to a peg thrust in the ground when the trap is used outdoors. Sometimes a larger animal or a bird gets its nose or foot into the trap, or the bird its bill, and carries off the trap unless secured. These traps persistently used will keep a garden establishment clear of mice.

The short-tailed field vole is more cautious. It does not take quickly to cheese, but after a while acquires a liking for it, or is overcome by the temptation. Any way, after trying many baits, I have found none at all comparable to cheese. It may be allured by a Strawberry well studded with seeds, yet a few traps baited with cheese and placed under the Strawberry leaves, especially where there are many fruits beaped, will mostly "take," and once the mice begin the others seem to come with a rush to destruction. I do not know of a vegetable bait, or even a poison, that is acceptable or safe to use for this creature. This and the house mouse nibble at so many things that it is really tampering with human life to use poison. I have known the house mouse eat Melons, Peaches, Grapes, Pears, and Strawberries, and though no one would think of sending fruit nibbled by mice to table, yet the danger is where poison is laid of the animals carrying small portions of it to fruits they may scrutinise but apparently not attack. The quantity may be infinitesimal, still not benefiting mankind. There ought to be the greatest care and circumspection in using poisons for the destruction of mice.

The field mouse takes a baited trap readily, preferring the cheese bait to a Pea or Bean; in fact, the steel bird trap properly oiled, baited with crust cheese duly secured, and set light, will catch the youngest as well as the oldest of mice, and in nine cases out of ten kill them on the spot. This is more merciful than poisoning or starvation in box traps.

To the figure 4 trap no objection can be taken. It is a sure trap, especially for the field mouse, when baited with a pea or a bean, and insures a speedy passage of life. It is equally efficacious against the house mouse, but of no use whatever in destroying the short-tailed field vole. Pitfalls about 15 inches deep, twice the width at the bottom as at the top, so that the sides are unclimbable, are a good means of taking the vole. An inverted flower pot sunk in the ground is sometimes used, but though I have used this kind of trap I have never been successful in capturing a vole. It is not a burrowing animal generally, though it knows a hole in the ground from one in a flower pot. Precautions against attack are useless as regards the vole. Owls, hawks, particularly the kestrel, and weasels are their great enemies. Against those keepers wage an incessant war of extermination, and are mostly successful in breeding a plentiful crop of vermin. Cats seem the only animals left that can be used against rodents with advantage.

Preventive measures against house and field mice are moistening the seeds, then coating them with red lead before sowing, or for large seed such as Peas and Beans wetting them with petroleum. Those are good as far as they go, also against birds, and act as deterrents, but the only safe, sure cure is to catch and kill the pests. Covering the soil over seeds with an inch thickness of sharp coal ashes is useful alike against slugs and frost, the mice not liking to scratch through the

ashes, but the dislike is overcome when necessity presses. The only disadvantage the traps have is that of their entailing trouble and attention so as to keep them in order.—G. ABBEY.

THE EDIBLE STACHYS.

I DO not know whether "D., Deal," is an Hibernian or not, but a paragraph in his communication on page 424 apparently belongs to the tread-on-the-tails-of-my-coat order, and he would perhaps be disappointed if no one accepted the invitation. His graceful epithet, "very ridiculous," was, no doubt, intended to apply to something I said in a short article on the Stachys a few months ago, but your correspondent has missed the mark he intended to hit, and hit one he intended to miss—himself.

A fanciful name was certainly applied to the queer-looking tubers at a family dinner, and I thought there could at least be no impropriety in recording it; but that name was not "winter whitebait," and I shall be very much surprised if this name can be found in any other article than that in which it is described as "very ridiculous." "D., Deal," then condemns a creation of his own—accidentally, it is true, but condemns it all the same—when he intended to condemn another. He is, of course, at liberty to correct his mistake, reproduce what I really did say, and condemn it if it pleases him, to his heart's content. It will be naturally supposed he had some good or useful object in view in his intention to stigmatise a harmless expression, but I cannot at present see so clearly as is desirable where the goodness comes in, or the usefulness either. Perhaps he will have the courtesy to explain.

I do not at present say anything about the "queer-looking roots," beyond observing that several persons like them, and speak favourably of them; and I should not like to suggest that "D., Deal," gives us no information in his article, for he does tell us definitely (1) That M. de Vilmorin is his friend; (2) That all Parisians are not courteous; (3) That the Japanese Radish has disappeared; (4) That he does not like the Stachys; (5) That the name he has given it is "very ridiculous;" and (6) That he was once disgusted with sprats.—A CITY MAN.

GARDENERS' ORPHAN FUND FLORAL FÊTE.

FOR a third time the standholders of Covent Garden put their best efforts forward for the benefit of the Gardeners' Orphan Fund on the evening of Wednesday, 21st inst. Finely cultivated market plants were arranged on the stands of the wholesale flower market in artistic combinations, each standholder seeming to have done his best to produce a display of flowers of the greatest beauty. The white-flowered Marguerite, so popular in France, formed the chief item on the stands, and veritable avalanches of these plants bearing flowers of large size met the eye on all sides; banks of Fuchsias and brilliant show Pelargoniums, at times in combination; grand lots of Hydrangeas, both hortensis and paniculata; Erica Cavendishiana, and also that known in the market as "floribunda alba," were among the more conspicuous plants. It may be of some interest to state the approximate number of plants displayed. There are 300 stands, which it is calculated hold in the aggregate about 126,000 plants. What a feast of flowers—and flowers as they are known to the public, too, such as are bought at the street doors and in the florists' shops, not the display of rare exotics such as we see at the ordinary flower shows—which appeal more to those specially educated to know them.

The fête was opened at 7.30 by the Lady Mayoress, who was received by Messrs. Bourne, Stutfield, Assbee, Barron (the Honorary Secretary), and several members of the Committee, and conducted round the market, after having been presented with an elegant bouquet of Orchids by Miss Violet Barron. With the Lady Mayoress was the Lord Mayor, Sir Henry Isaacs, who was accompanied in the inspection of the flowers by the President of the Gardeners' Orphan Fund, Sir Julian Goldsmid, and Lady Goldsmid. In the absence of the Chairman, Mr. G. Deal, whose serious illness was much regretted, Mr. Assbee, the market superintendent, addressed a few words to the Lord Mayor and Lady Isaacs, explaining that the flowers they saw around them were just the ordinary trade productions, better arranged than usual. The Lord Mayor then thanked the members of the Committee for their reception of Lady Isaacs and himself, and expressed his gratification at the sight around him, remarking that the fête appealed not only to the eye but to the heart, since it was a beautiful means to a still more beautiful end—namely, the alleviation of human misery. The Lady Mayoress then, in a few well chosen words, declared the fête open. The band of the Royal Horse Guards (Blues), under Mr. Charles Godfrey, R.A.M., performed a selection of music, and visitors were fairly numerous, and we fully believe that the fund will derive substantial benefit from the venture. Let us hope so, and in doing so thank once again the market standholders for their kindness in so ably aiding the Gardeners' Orphan Fund.

ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.

GREAT WHITSUN EXHIBITION.

ACCOMPANIED by brilliant summer weather the twenty-fourth Exhibition of the new series, established by the above Society in 1867, opened at the Botanical Gardens, Old Trafford, on the 23rd inst., and

proved one of the most attractive held by the Society. All the available space at the command of Mr. Findlay was filled; and, as usual, the arrangements were perfect, and very conducive to the convenience of exhibitors and visitors. The spacious exhibition house contained the choicer examples—Orchids, stove and greenhouse and foliaged plants, &c., while in the annexe were seen collections of Roses, Ferns, Pelargoniums, hardy plants, &c., and on tables in the centre of the building, the fruit—a remarkably good display. These exhibits were flanked by large groups of hardy Rhododendrons, &c. Further on—in the concert hall—were the Pansies and Violets in pots, the alpine plants, cut Roses, and many miscellaneous collections. It was an exhibition in which there were very few weak points, and some exceptionally strong. The groups of Orchids and other plants arranged for effect were surprisingly beautiful; the art of the floral decorator was seen displayed to the very best advantage. Ten large groups occupied a considerable space, and they formed a splendid exhibition in themselves. In the amateurs' division there were five competitors, and the leading prize went to Mr. Blair, gardener to the Duke of Sutherland, Trentham, for one so artistically arranged and so perfect in its details as to defy description. Elegant Palms and other plants formed an appropriate background. Along the centre were delightful mounds of Orchids, each surmounted by an appropriate Palm, and the front margin was made up of dot plants, comprising Orchids, Masdevallia rosea and Cypripedium bellatulum being especially conspicuous. Mr. Cragg, gardener to A. Heine, Esq., Fallowfield, was a remarkably good second, the main features of arrangement being the same, but it was made very rich and striking by a free use of lovely Orchids. The third prize went to Mr. McIntyre, gardener to Mrs. J. Gurney Pease, Woodside, Darlington; and extra prizes were awarded to Mr. R. Elphinstone, gardener to C. M. Royds, Esq., Rochdale, and Mr. J. Currey, gardener to Col. Pepper, Salisbury. In the nurserymen's class, Mr. J. Cypher, nurseryman, Cheltenham, had a very fine and striking group, the Orchids being valuable and highly effective, and Mr. J. Robson, nurseryman, Altrincham, being second, these two being the only competitors.

In the amateurs' class for a miscellaneous collection of plants to fill a space of 200 feet, Mr. G. Wilkes, gardener to S. Baerlin, Esq., Didsbury, was first with one of those superb arrangements of Ferns, Palms, Crotons, Dracenas, and flowering he is in the habit of staging at this Show. Mr. W. Elkin, gardener to Mrs. Thomas Agnew, Eccles, being second, and Miss Lord, Ashton-on-Mersey, third. In the nurserymen's class Messrs. R. P. Ker & Sons, nurserymen, Liverpool, had a very fine group indeed, the leading feature being some of their grandly grown and coloured Crotons, combined with Dracenas, Ferns, Palms, and flowering plants; Mr. A. J. A. Bruce, Edge Lane Nursery, Chorlton-cum-Hardy, being a good second.

Some very fine Orchids were shown. It was thought specimen Orchids was not so numerous as usual, but there was the presence of delightful collections of choice forms from some of the leading importers and nurserymen. In the class for twelve specimens Mr. Whillans, gardener to the Duke of Marlborough, Blenheim, was first with very fine examples of *Lælia purpurata* with fourteen flower stems, *Cattleya Skinneri*, finely coloured; *C. Mossiæ*, *C. Mendeli*, very fine; *Dendrobium thyrsoflorum*, *D. Falconeri*, and *D. Deari*, *Cypripedium barbatum*, *C. selligerum majus*, very fine; *C. caudatum* with nearly fifty fine flowers, and *C. lavigatum*, and the bright coloured *Epidendrum vitellinum*. Mr. Blair was second, his leading specimens being *Odontoglossum Alexandræ*, *O. Pescatorei*, a very fine piece of the Trentham variety of *Cœlogyne cristata*, *Cattleya Mossiæ*, *C. Mendeli*, three excellent varieties of *Lælia purpurata*, *Miltonia vexillaria*, and *Dendrobium vexillarium*. Third, Mrs. Hodgkinson, High Lawn, Bowdon. Mr. Blair had the best six, showing very fine examples of *Oncidium ampliatum majus*, *Cattleya intermedia*, *C. Mossiæ*, *Lælia purpurata*, *Cypripedium caudatum*, and *Dendrobium Deari*. Second, Mr. A. Johnson, gardener to Thomas Slatter, Esq., Whitefields, Manchester, with *Odontoglossum crispum*, *O. Rossi majus*, *O. Pescatorei*, *Lælia grandis*, *L. purpurata*, and *Dendrobium thyrsoflorum*. Third, Mr. Hodgkinson. In the class for ten Orchids, *bona fide* specimens, Mr. Cragg was first with some excellent plants, consisting of *Dendrobium Dalhousianum*, *D. nobile*, *D. thyrsoflorum*, *Vanda teres*, *Cattleya Skinneri*, *C. Skinneri alba*, *Phalaenopsis amabilis*, *Lælia purpurata*, *L. purpurata alba*, and *Calanthe veratrifolia*. Second, Mr. Blair, whose leading plants were *C. Skinneri*, *C. Mossiæ*, *Cœlogyne cristata*, and *Lælia purpurata*. There was no competition in the classes for ten *Cattleyas* or three *Vandas*.

Stove and greenhouse plants were represented by eight good specimens from Mr. Nicholas, gardener to the Earl of Zetland, Upleatham, who had a fine piece of *Boronia elatior*, *Franciscæ calycina major*, *Anthurium Schertzerianum*, *A. Andreanum*, *Dracophyllum gracile*, *Erica depressa*, *Apehexis maerantha purpurea*, and *Darwinia tulipifera*. Mr. S. Baerlin was second with some fairly good specimens, and Col. Pepper third. Mr. J. Cypher had the best ten plants in the nurserymen's class. Mr. J. F. Mould, Pewsey, Wilts, was second. The best specimen stove plant was a fine *Anthurium Schertzerianum* from Lord Zetland, Mr. Blair winning second with the same. The best greenhouse plant was *Darwinia fuehsoides* from Col. Pepper; Lord Zetland second with *Apehexis rosea*. *Azaleas* fell much below their usual mark, and six specimens from Mr. Thomas Agnew were awarded a second prize.

Greenhouse *Ericas* in the amateurs' class were poor. In the class for nurserymen Mr. Cypher was first with neat specimens, his best plants being *ventricosa hirsuta*, *v. rosea*, *v. coccinea*, and *tricolor Wilsoni*. Mr. J. F. Mould was awarded a second prize.

Tuberous-rooted Begonias were, probably owing to the earliness of the season, not so well represented by amateur cultivators as might have been expected, the only six single varieties coming from Miss Lord, Ashton-on-Mersey. The double varieties were very poor. In the nurserymen's division the only exhibitors were Messrs. Ryder & Son, Sale, who were placed first with twelve single and also twelve double varieties, having small well bloomed plants of high quality.

Some remarkably fine Show Pelargoniums were staged by Mr. C. Rylance, nurseryman, Ormskirk—large, well-grown, and well-flowered plants of Beauty, Prince Leopold (very bright), Venus, Duchess of Edinburgh, Harlequin, Pygmalion, Lady Isabel (very pretty, lilac purple), Edwin Perkins, and Gaiety, he being the only exhibitor. Fancy Pelargoniums were so indifferent that the first prize was withheld. Mr. C. Rylance won first with eight Zonals, but the art of growing these as they were exhibited ten or twelve years ago appears to be in danger of becoming lost. Some nice specimen Ivy-leaved Pelargoniums were shown by N. A. Earle, Kersal, and C. M. Roysds, Esqs.

Roses in pots were a good feature, but the plants were generally small. Mr. Wood, gardener to Jas. Brown, Esq., Heaton Mersey, had the best ten specimens in the amateurs' division, Madame G. Luizet, Juno, François Levet, Madame H. Jamain, and Marie Van Houtte being the best. Second, N. A. Earle, Esq. The best twenty plants came from Messrs. Paul & Son, Old Nurseries, Cheshunt, and included good examples of Celine Forestier, Magna Charta, Paul Jamain, Centifolia rosea, Madame Lacharme, The Bride, Merveille de Lyon, François Levet, Madame Margottin, Innocente Pirola, and Violette Bouyer. Second, Mr. W. F. Williams, Stockport. Messrs. Paul and Son also had the best thirty specimens, including Niphotos, Jean Ducher, Etienne Levet, Alba rosea, Caroline Kuster, La France, Comtesse de Serenye, François Levet, Cheshunt Hybrid, &c. Second, Mr. J. F. Mould. Some good Gloxinias were shown by Messrs. C. M. Roysds and C. J. Bishop, well grown and of fine quality. Mr. Earle had the best three pots of Liliun auratum, Messrs. Low being second, but somewhat drawn in being hastened on into flower.

Herbaceous and alpine plants were as usual a great feature. The best thirty specimens came from Mr. S. Vickers, gardener to J. Lamb, Esq., Bowdon, who had Liliums, Pbloxes, Pæonies, Trollius europæus, Campanula grandis, Itoeia japonica, Gladiolus Colvilli albus, Spiræa aruncus, &c. Second, Mr. W. Plant, gardener to R. P. Gill, Esq., Ashton-on-Mersey, who had similar subjects. With thirty alpine plants the positions were reversed, Mr. Gill being well first, his principal subjects being varieties of P. Sieboldi, P. obconica, Ajuga genevensis, Silene pendula compacta, Campanula portuagalagiana, Rodegasca podophylla, Saxifraga pyramidalis, S. lantoseana superba, and the Edelweiss. Mr. Lamb had Alyssum saxatile compactum, Saxifraga pyramidalis, S. Wallacei, Iberis corifolia, Pblox setacea Fairy, &c. Mr. F. Blower, Children's Hospital, Pendlebury, was third. In the nurserymen's division the best forty Alpines came from Messrs. Paul & Son, who had Cypripedium parviflorum, Globularia tricosantha, Ramondia pyrenaica and its white form, Dianthus alpinus, Lithospermum prostratum, Myosotis rupicola, Omphalodes Lucillæ, &c. Messrs. Dicksons, Limited, Chester, were second with Cypripediums spectabilis, Calceolus, and acaulis, Onosma taurica, Saxifraga McNabiana, S. pyramidalis, Dodecatheon integrifolium, Heuchera sanguinea, &c.

Clematis, once a great feature at Manchester, were sparingly shown, there was but one collection of six plants from Mr. N. A. Earle, who had Lucie Lemoine, Henryi, Jackmanni, Madame Grange, and Fairy Queen.

Pansies and Violas in pots, as is usual, furnished charming masses of colour. The best twelve pots of show varieties in the amateurs' division came from Mr. F. Blower, Pendlebury, his leading varieties being George Rudd, a fine yellow self; Cunliffe Brooks, Mr. Laing, Dr. Hardy, and Fame. Mr. R. P. Gill was second. In the nurserymen's class for twenty Pansies Mr. S. Robinson, Sale, was first with a very good lot indeed, having of dark selfs, Dr. Hardy and W. E. Gladstone; yellow selfs, George Rudd and Cloth of Gold; white self Mr. Laing, and blue self Bluestone; yellow grounds, Lizzie Bullock, Meteor, and Lady Derby; white grounds, Mrs. A. Buchanan and Mr. Eades. There was no other competitor. In the class for twenty pots of Fancy Pansies Mr. Robinson was also the only exhibitor, having a remarkably fine lot, consisting of Joseph Fleming, Robert Scott, W. A. Dixon, David Baird, Neil McKay, Agnes Mitchell and Mr. Nelson as the finest varieties. Mr. Robinson was also first with twenty pots of Violas, having of blues, Blue King, King of the Blues and Queen of the Blues; Yellows, Sovereign, Queen of Yellows and Ardwell Gem; whites, Countess of Hopetoun and Pilrig Park. Second, Mr. Mellor, Chorlton-cum-Hardy.

Foliaged plants were a good feature, the best ten coming from Lord Zetland, who had as the leading specimens Croton Queen Victoria, very fine; Chamærops Fortunci, Kentia Belmoreana, Gleichenia rupestris, Neottopteris australasia, &c. Second, Mr. S. Baerlin, with Cycas circinalis, Cordyline indivisa, Enecephalartos Lehmanni, and some fine Crotons. Mr. J. Cypher had the best eight fine foliageed plants, consisting of Latania borbonica, Cycas circinalis, Kentia australis, K. Forsteriana, Phormium tenax variegata, Croton Disraeli, Cordyline indivisa, and one other. Second, Mr. J. F. Mould.

Ferns were a leading feature, especially the hardy types, which were superbly shown. Mr. F. Millward, gardener to R. Goodair, Esq., Lawnhurst, Didsbury, was first with eight exotic varieties, consisting of Davallia Mooreana, D. pixydata, D. polyantha, Alsophila exelsa, a seedling Golden Gymnogramma, Cibotium Schiedei, Adiantum pentophyllum, and Dicksonia antarctica. Second, Mrs. Gurney Pease, with

Gleichenia rupestris, G. semi-vestita, G. Mendeli, Adiantum farleyense, A. decorum, Davallia fijiensis, &c. The best twelve hardy Ferns in the amateurs' class came from Mr. R. Tyldesley, Worsley, who had superb examples of Lastreas, Athyriums, Osmundas, Polystichums, &c., some of them very handsomely crested. Second, Mr. N. A. Earle. In the nurserymen's class for twelve, Messrs. H. Stansfield & Co., Sale, were first, also with some finely grown and handsome plants.

Mr. R. Goodair had the best four Yuccas, exhibiting a pair each of the green and variegated forms of Y. aloifolia; Mr. S. Baerlin being second with two plants of Y. filamentosa variegata, and two of aloifolia variegata. Palms were a fine feature. Coming at the back of flowering plants, they formed an admirable background. Mr. S. Baerlin had the best four, consisting of Phoenix rupicola, Kentia australis, K. Belmoreana, and Thrinax elegans. Mr. Thomas Agnew was second with Cocos Weddelliana, Latania borbonica, Geonoma gracilis, and Kentia Canterburyana.

Crotons were small, but well grown and finely coloured. The best six came from Mrs. J. Gurney Pease, who had Obelsoni, Mortefontainensis, aigburthensis, Veitchiana, and Hawkeri. Miss Lord was second but with unnamed plants. In the nurserymen's class for ten plants, Messrs. R. P. Ker & Son staged that number of beautifully grown and brilliantly coloured even specimens, consisting of aigburthensis, Disraeli, Grandis, Newmanni, Mortefontainensis, Queen Victoria, Williamsi, Ruberrimus, Baroness Rothschild, and Hawkeri.

Dracænas were small like the Crotons, but very bright. Colonel Wingfield, Shrewsbury, had the best six, consisting of Tbossoni, Baptisti, Norwoodienseis, Amabilis, Anerleyensis, and Gladstonei. Mr. J. Lamb, Bowdon, was second with Elizabethæ, Youngi, Reurva, Lindeni, Baptisti, and Amabilis. The best twelve came from Messrs. R. B. Ker & Co., and like their Crotons, were admirably grown. The varieties were Salmoena, Berkleyi, Madame Lecoq, Dumesnil, Alba marginata, Norwoodienseis, Dr. Alpland, Gladstonei, Terminalis alba, Halseyi, Versaillensis, Barroni, and Lindeni. Mr. J. F. Mould was second, his best examples being Lindleyana, Massangeana, Caledonica, and Amabilis.

Of Pitcher Plants, the best collection came from Mr. Blair, the leading kinds being Hookeri, Mastersi, Williamsi, and Harryanum, small, but well grown. In the nurserymen's class for ten, Mr. A. J. A. Bruce was the only exhibitor, staging all Sarracénias, such as Courti, Hybrida, Purpurea, Flambeau, and Tolliana.

Fruit made a good display, and was better in extent and quality than has been seen in Manchester for a few years past. The best collection of eight dishes came from Mr. J. McIndoe, gardener to Sir J. W. Pease, Bart., M.P., Hutton Hall, Guisborough, who had Black Hamburg and Foster's Seedling Grapes, Queen Pine, Grosse Mignonne Peaches, Lord Napier Nectarine, Sir Harry Strawberries, Exquisite Orange, and Scarlet Premier Melon. Mr. Blair was second with the same varieties of Grapes, Grosse Mignonne and Hale's Early Peaches, Melons, Strawberries, &c. Mr. J. G. Morris was third. The best two bunches of black Grapes were superb and finely finished examples of Black Hamburg from Mr. Lowden, gardener to Thomas Barnes, Esq., Chirk. Mr. Speed, gardener to Lord Penrhyn, Bangor, was second with some well-finished bunches also; and Mr. J. G. Morris third. Mr. Lowden had the best two bunches of white, staging Muscat of Alexandria, a little lacking in colour, but excellently flavoured; Mr. J. G. Morris being second with Foster's Seedling. The only exhibitor of two Pines was Mr. McIndoe, who had a fine Queen and a seedling, and he also had a good Charlotte Rothschild in the class for one fruit. Mr. Blair had the best twelve pots of Strawberries, and Mr. Upjohn, gardener to the Earl of Ellesmere, Wortley Hall, was second with the same, the fruit in both cases larger and finely coloured and flavoured. Mr. Upjohn had the best dish of Peaches, staging very fine Hale's Early. Mr. McIndoe was second with Grosse Mignonne. Mr. R. Davies, gardener to the Hon. Mrs. Meynell Ingram, Temple Newsam, was first with a dish of Nectarines, having fine Lord Napier; and Mr. McIndoe second with the same. Melons were quite numerous for the season. The best S.F. was Masterpiece; the best green flesh, High-cross Hybrid. Mr. Davies had the best dish of Cherries, showing good Black Circassian. Mr. Blair came second with a dish unnamed. The best Strawberries were La Grosse Sucrée, Sir Harry, and Noble. Perfection Tomatoes were well shown by Messrs. Morris and Upjohn, and fifteen braces of Cucumbers competed, Lockie's Perfection taking the leading prize.

Cut flowers were limited in quantity. The best twelve Tea-scented Roses came from M. Bulley, Esq., Liverpool, who had superb blooms of Comtesse de Nadaillac, Innocente Pirola, Madame de Watteville, Anna Olivier, Souvenir d'Elise, Jules Finger, Edith Gifford, Comtesse P. des Parc, Caroline Kuster, Madame Lambard, Marie Van Houtte, Catherine Mermet. Second Mr. Grieve, gardener to Thomas Gee, Esq., Allerton, Liverpool. Messrs. Harkness & Sons, nurserymen, Bedale, had the best eighteen Tea Roses, staging all Maréchal Niel. Mr. James Brown, Longford, had the best twelve Roses, Messrs. Lord being second. The classes for Ranunculus and Spiræas brought no competition.

Of miscellaneous collections of plants there were a large number. Mr. B. S. Williams, Victoria Nursery, Holloway, London, led the way with a large and interesting collection of new and rare plants, &c., including some very fine Amaryllises, the rich blue Leschenaultia biloba major, &c. The Liverpool Horticultural Co., and Messrs. Dicksons (Limited), Chester, had the same, though not on so extensive a scale. Mr. F. Sander, St. Albans, had a superb collection of new and choice Orchids; and Messrs. Charlesworth, Shuttleworth, & Co., Heaton, Bradford, a very valuable lot also; while Mr. W. Owen, nurseryman, North-

wich, had a collection of Cattleyas, &c. Messrs. Ryder & Son, nurserymen, Sale, had large banks of double and single Begonias of very fine quality. From Messrs. Clibran & Son, Altrincham, came a large collection of flowering plants and various cut flowers, including Show, Zonal, and Ivy-leaved Pelargoniums. Mr. H. Stevenson, Whalley Range, had some excellent shrubby Calceolarias; and other minor collections were also staged. The large orchestra in the Concert Hall was admirably decorated by Mr. J. Mason, Market Street, Manchester.

First-class certificates of merit were awarded to Mr. F. Sander for *Phaius Humboldtii*, *Cattleya Schilleriana nobilis*, and *Cypripedium Rothschildianum*; to Messrs. Charlesworth, Shuttleworth & Co., for *Odontoglossum crispum* (golden variety), and to O. *crispum* Wrigleyanum; to Mr. Blair, Trentham Gardens, for *Odontoglossum Alexandræ Wallisi*, the large flower handsomely spotted with purple, and to a rich-coloured variety of *Lælia purpurata* named Imperial; to *Cytisus scoparius Andreanus*, and two new Lilacs from Messrs. Paul & Son; to Mr. F. Perkins, Regent Street, Leamington, for Pelargonium decorative Princess Beatrice; to Messrs. Ryder & Son for single Begonias George Paul and J. Percival; and to double Begonias Messrs. Ryder, Annie Ryder, and Sister Ethel.

SOUTHAMPTON SHOW.

MAY 26TH.

THE first of what are termed spring exhibitions was held on the date named in the beautiful grounds in Westwood Park. A large marquee was employed for the exhibits, the centre being occupied with a splendid collection of a hundred standard and dwarf Rhododendrons in pots, sent, "not for competition," by Mr. W. Rogers, Red Lodge Nurseries, Southampton. A few of the most striking varieties were Queen Victoria, Lady Caroline Neville, Gulnare, Princess Mary of Cambridge, Sir Robert Peel, and a seedling of Mr. Rogers' raising—a dark lilac with a deep purple blotch on the upper petals, which he has named Sir Neville Chamberlayne.

Mr. E. Wills, gardener to Mrs. Pearce, The Firs, Bassett, Southampton, staged a miscellaneous group effectively in a semicircular space of 120 square feet, which was generally admired. A capital group occupying a space 80 square feet was arranged by Mr. E. Carr, gardener to W. A. Gillett, Esq., Fair Oak Lodge, Bishopstoke, consisting of Palms, Crotons, Orchids, &c. Among the latter were good pieces of *Oncidium Marshallianum*, *Dendrobium thysiflorum*, *Odontoglossum Tripedium*, *Cattleyas Mossiæ*, and *Mendelli*, *Cypripedium Lawrenceanum*, and *Schomburgia tibescens*, all well flowered. Mr. B. Busby, gardener to F. Willan, Esq., Thornhill Park, Bitterne, also had a neat group in this class. A splendid group of Pelargoniums, Petunias, and Geraniums in pots, edged with *Saxifraga Camposi*, reaching 40 feet long of tabling, was arranged by Mr. B. Ladhams, florist, Shirley. Mr. Wills had the best *Spireas* in pots, well flowered plants. Mr. T. Hall, gardener to the President, S. Montagu, Esq., South Stoneham House, Southampton, staged three dozen well flowered *Gloxinias* in 3 and 6-inch pots, these being neatly arranged with Maidenhair Ferns and *Caladium ayyrites*, margined with the latter—a most effective group.

Cut flowers were not staged in large numbers, the most attractive collection covering 20 feet length of tabling of hardy flowers from Mr. Ladhams. Mr. Carr staged cut Roses in good condition. Mr. Rogers and Mr. Busby also sent boxes of cut blooms of Rhododendrons, which assisted in making an interesting display.

THE PARIS SHOW.

MAY 21ST TO 26TH.

CONTINENTAL horticultural exhibitions have few features in common with those seen in England, but as effective displays they are unquestionably, in the majority of cases, much superior to our formally arranged shows. In Belgium it is usual to have the plants in their respective classes for convenience in judging on one day, and then immediately that is completed they are re-arranged without regard to the classes entirely, with a view to the production of the best general result. This necessitates considerable labour, and at Paris a much more satisfactory system is adopted. The annual Exhibition of the Société Nationale d'Horticulture de France is held in the Pavillon de la Ville in the Champs-Élysées, and that for the present year, which opened on Wednesday, May 21st, was an excellent example of how much can be effected by a due exercise of taste in arrangement. The building itself is very spacious, long, broad, lofty, and light. It is, in fact, one of the best permanent exhibition buildings we have seen, admirably calculated alike for the preservation of plants either in hot or cold weather. This only sufficed, however, for some of the larger groups of plants. A tent fully 200 feet long was devoted to Roses and annuals. Arcades and annexes on each side were occupied with cut flowers, vegetables, salads, and miscellaneous exhibits; while a great space of land immediately adjoining the Exhibition was covered with garden structures, heating apparatus, implements, &c. Altogether it made a good representative show; but, of course, it was too early for fruit, though some fine Strawberries and Cherries were included. The Exhibition was too large a one to report fully in the present issue, especially as the pressure upon our space is very great this week, but a general description of the principal features will be given, reserving for another week some remarks upon the novelties and other plants shown.

Entering the Show ground from the Champs-Élysées, a large group

of *Chrysanthemum frutescens* from M. Gillard was very conspicuous upon a mound on the right. The plants were mostly dwarf trained, like the specimens of the autumn *Chrysanthemums* so often seen, and were covered with flowers, but they were somewhat too formal, and for a naturally graceful plant like this to be rigidly tied in a certain form is a mistake. Outside the main building the numerous handsome Conifers from M. Honoré Defresne also formed an important feature. In the Pavillon a most picturesque style of arrangement was adopted. The ground was thrown into mounds, covered or broadly margined with turf, while at the side turf stages were similarly formed with considerable labour, but the result well repaid the efforts of those in charge of the arrangement. Plants never look so well as when arranged on grass and low mounds, and far preferable to the monotonous formal stages so commonly seen at English exhibitions. Grand groups of Rhododendrons and Azaleas were placed a short distance from the entrance, one long grass mound intervening, with brilliant beds of Calceolarias, Pelargoniums, and single specimen Orchids. The Rhododendrons were from M. Moser and MM. Croux et fils, and were fine bushes, with substantial trusses of flowers, but they were given too prominent a place near the entrance to permit a good general view of the Show, and they would have made a good background, or if raised higher near the walls they would have been seen to better advantage.

Orchids are evidently becoming more popular in France, and several capital collections were shown both by nurserymen and amateurs. Messrs. Sander & Co., St. Albans, were the only English exhibitors, and were adjudged the "prix d'honneur"—a gold medal offered by the Minister of Agriculture. The group of a good one containing some handsome specimen *Cymbidiums* and many choice Cattleyas, with other Orchids, but owing to the limited space at their disposal in the large building they had to divide their resources; but besides the specimens scattered through the Exhibition, and a rostrum near the entrance decorated with Orchids, a handsome span-roofed house, erected and exhibited by M. Moutier (gold medal) was filled with *Odontoglossum vexillarium* in all its best varieties, with many choice hybrids and other plants tastefully arranged, and this formed one of the most attractive features of the Show. M. Peeters of Brussels had a large display of Cattleyas and *Odontoglossums*, comprising some fine varieties (gold medal). Madame Block, also of Brussels, M. Massange de Louvrex, M. Gardin, and others also exhibited well, but these and other exhibits must be noted more fully at another opportunity.

Caladiums from M. Bleu, and Tuberous Begonias from M. Robert, formed central crescent-shaped beds of much beauty, and a group of the new *Cytisus scoparius Andreanus* from M. Croix et fils showed the characters of this beautiful variety capially, dwarf bushy plants forming the groundwork, with standards rising amongst them.

A most interesting group of seedling Anthuriums was shown by M. de la Devansaye, Château-du-Fresne, and representing a surprising diversity of colours from pure white to most heavily spotted forms. They have been obtained by close attention to hybridisation and selection for a number of years, and the results must be highly gratifying to their owner. From M. Chantin came an extensive group of foliage plants, grand specimens that, arranged upon an ornamental rockery at the back of a piece of water, had an imposing effect. M. Truffaut of Versailles had a large and handsome group of choice new plants, comprising many valuable Orchids, especially Cattleyas, and several new Ferns of much promise. Another portion of this building was also occupied with the floral decorations, but we shall have more to say about them another time.

In the long tent the Roses from M. Verdier and M. Lévêque were charming in groups of standards around the sides and of dwarfs in the centre, the flowers most abundant, the colours bright, the fragrance rich, but the substance somewhat deficient. The beds of annuals were an astonishing feature to English visitors, and those from MM. Vil-morin-Andrieux & Cie. (prix d'honneur) were of especial beauty, so varied and bright in colour, and lasting so well that it is surprising they are not more frequently shown in England in a similar way. MM. Vil-morin also had a wonderful collection of vegetables and salads, but further notice of these and the novelties, including M. Bleu's handsome new Bertolonias, must be reserved.—L. CASTLE.

BATH SPRING SHOW.

THAN the Sydney Gardens, Bath, no better site for a flower show at this time of the year could well be found. With all the trees and shrubs at their best, and an excellent display of all kinds of flowers, fruit, and vegetables in season, nothing but the fine weather, fortunately and almost unexpectedly experienced, was needed to make this Show thoroughly attractive and enjoyable. It was a great success in every way, and reflected much credit on the management generally.

Of late years Orchids have become the great feature in this Exhibition, several local growers having formed superior collections, exhibitors also coming from Cheltenham and Trowbridge. The premier prize, for a group of Orchids arranged for effect on a space 12 feet by 6 feet, Ferns and foliage plants allowed, was well won by the Rev. E. Handley (Mr. S. Kerlake, gardener), and this exhibitor had every reason to be proud of the effect produced. The Orchids included numerous good *Lælia purpurata*, a form named Handleyana, which is in the way of Russelliana, being certificated; Cattleyas Mendelli and Skinneri, in considerable numbers; the charming *Vanda teres*, *Vanda cœrulescens*, *Vanda suavis*; several good *Cypripediums*, *Oncidiums*, and *Dendrobiums*. The second prize was awarded to R. B.

Cater, Esq., who also had an excellent group of plants, somewhat informally arranged; the third prize going to Messrs. Heath and Sons, Cheltenham. The Rev. E. Handley took the first prize for six varieties of Orchids, these consisting of *Cymbidium Lowianum*, with three strong spikes; *Cattleya Mendelli*, with fifteen grand flowers; *Lælia purpurata*, a fine bold form with seven good spikes; *Cypripedium caudatum*, having ten flowers; *Cattleya Skinneri*, rich in colour, carrying eight spikes; and *Dendrobium suavisimum*, with fourteen spikes. The second prize was awarded to Messrs. Heath & Son, who had enormous made-up pans of *Cypripedium Lawrencianum*, *Ondotoglossum Alexandræ*, *Dendrobium thysiflorum*, *Cattleya Mendelli*, and *Lælia purpurata*. There was better competition in the class for four plants, the Rev. E. Handley, however, being again well first, staging a grand *Cattleya Mendelli* and *Lælia purpurata*, *Oncidium ampliatum majus*, and *Dendrobium Bensonæ*, all in splendid condition. Sir A. Ramsay, Cheltenham, was a creditable second, his best being *Cattleya Mossie*, with seven fine spikes; and *Dendrobium suavisimum*, having nine spikes. Mrs. Gouldsmith (Mr. G. Pymm, gardener), Trowbridge, was third, others also exhibiting well. A fine plant of *Lælia purpurata* with seven spikes gained the Rev. E. Handley the premier award in the class for a single Orchid; Mr. R. B. Cater being a good second.

Roses are usually seen in good condition at this Show, and there were two groups, 12 feet by 6 feet, of plants in pots that were exceptionally attractive. The plants were in comparatively small pots, but all fine healthy foliage and perfect blooms, the Teas being very beautiful. The Rev. E. Handley was well first, and Dr. Budd second. Similar positions were occupied by these prominent exhibitors in the class for six specimens, the Rev. E. Handley being easily first with Juno, Mdile Thérèse Levet, La France, Earl of Pembroke (very fine), Madame Lacharme, and E. Morren. Dr. Budd was second, among his being several "clumsy" specimens. Mr. J. F. Mould was a creditable third. The competition with cut Roses was also good. The first prize for twenty-four blooms was awarded to Dr. Budd for a generally excellent stand, which included François Michelin, Merveille de Lyon, Pierre Carot, La France, Camille Bernardin, Comte de Raimbaud, Baroness de Rothschild, Ulrich Brunner, Innocente Pirola, Mrs. J. Laing, and Duc de Rohan in superb condition. The Rev. E. Handley was second, and Mr. M. Cole third.

Indian Azaleas were a few years ago the principal feature at the Bath May Shows, but latterly they have not been nearly so good. Mr. J. Cypher, Cheltenham, was well first with nine large specimens, these being informally trained and beautifully flowered. Colonel Landon (C. H. Keel, gardener), was a good second. Mr. C. W. Mackillop (A. Taylor, gardener), proved most successful in the other classes for Azaleas, other prizewinners being Messrs. H. Jones, W. C. Drummond, Jerome Murch (W. Marchant, gardener), and Major Clarke (G. Tucker, gardener), Trowbridge. Stove and greenhouse flowering plants were not quite so numerous as usual, but there were many fine specimens, notably by Mr. C. W. Mackillop, who was well first with nine varieties, which included extra good *Clerodendron Balfourianum*, *Genetyllis tulipifera*, *Erica depressa*, *E. ventricosa magnifica*, and *E. ventricosa albo-tincta*. Mr. J. Cypher was second with generally smaller plants, and Colonel Landon third. The best six specimens, all very creditable, were set up by Mr. J. F. Mould, Pewsey, Major Clarke being second and Colonel Landon third. There was a quite a good display of *Ericas*, Messrs. Mackillop, Cypher, and J. F. Mould being the principal prizewinners. *Calceolarias* were shown in a very superior condition by Major Clarke, none of the other competing collections approaching them in value, and the same may be said of the large flowered *Pelargoniums* staged by the same exhibitor.

Banks and groups are being greatly improved at Bath, the number of classes for these being gradually increased. The best bank of fine-foliaged and flowering plants were shown by Mr. J. Cypher, who had several grand Palms as well as well-flowered *Ericas*, *Anthuriums*, and other good plants usually shown by that well known exhibitor. Mr. J. F. Mould was a creditable second, and Mr. W. C. Drummond third. The best collection of twelve varieties of exotic Ferns came from Major Clarke, all being of medium size and in perfect condition. Mr. H. Jones was second, and Mr. W. C. Drummond third. One large tent was solely devoted to two classes for groups of plants arranged for effect on the turf. The first prize for a group to occupy a space not less than 150 feet was rightly awarded to Colonel Pepper (J. Curry, gardener), Salisbury, his arrangement being very tasteful. Mr. W. C. Drummond was second. Three entered with groups occupying not less than 75 feet, all doing well. Mr. Jerome Murch was a good first; Mr. W. Pumphrey (T. J. Tate, gardener), second, and Mr. E. Hall third.

Fruit and vegetables were shown in fairly large quantities, the competition being good in every instance. Strawberries in pots were of average merit, Mrs. Hill (J. Shellard, gardener), being first with Sir J. Paxton, and Lord Justice Lopes (W. Robinson, gardener) second with James Veitch. For a single dish of Strawberries the first prize went to Mr. W. H. Long, M.P. (A. Miller, gardener), who had very fine fruit of James Veitch; Lord Justice Lopes being second with the same variety, and Mrs. Hill third with Sir J. Paxton. No really good Apples or Pears were shown. Collections of vegetables were numerous and good. Mr. W. H. Long was easily first for a collection of nine varieties, these consisting of Ledsham's Broccoli, Sutton's Earliest Cabbage, Early Milan Turnips, Canadian Wonder Beans, Large Red Tomato, Early Gem Carrot, Asparagus, Sutton's Seedling Potato, and Stratagem Peas, all very superior. Mr. G. Garaway was second and Mr. J. Ricketts third.

There were also classes for smaller collections of vegetables and salad-ing, and also for various single dishes.

Non-competitive exhibits were, as usual, both numerous and attractive. Messrs. R. Veitch & Son, Exeter, had the most extensive display, which comprised many well-flowered Indian Azaleas, hybrid Rhododendrons, *Anthuriums*, Orchids, Japanese Maples, and a capital lot of bunches of hardy flowering trees and shrubs. Messrs. J. Cooling and Sons, Bath, also arranged a group of choice flowering and fine-foliaged plants, most conspicuous among these being the Roses, Orchids, *Ericas*, Palms, and Ferns. A good length of staging was taken up with an exhibit by Mr. A. A. Walters, Bath, several well-grown plants of *Lilium Harrissi* and *Dendrobium thysiflorum* showing up well in this.

ROYAL HORTICULTURAL SOCIETY.

THE TEMPLE SHOW, MAY 28TH AND 29TH.

THE Exhibitions held by the above Society in the Inner Temple Gardens have already secured considerable celebrity, and the Show which was opened yesterday surpasses in interest and beauty all those previously held there. There were, perhaps, fewer large specimens, but there was greater variety. The arrangement was excellent, and the number of visitors astonishing.

His Royal Highness the Prince of Wales visited the Show about 1 P.M., and after inspecting a portion of the exhibits proceeded to a *daïs* at one end of the large marquee, where he was received by the President and Council of the Society. The Secretary, the Rev. W. Wilks, read a short address from the Council, pointing out the work the Society had performed in connection with horticulture in past years, and referring to the proposed Horticultural Hall. The Prince of Wales replied in a few appropriate words, stating that it had given him much pleasure to be present, and that it was the best Horticultural Show he had ever witnessed, both as regards the exhibits and the arrangement. He earnestly wished the Society success in the efforts to obtain a central hall for horticulture.

A large number of visitors assembled to witness the opening and during the afternoon of the first day. Happily, the wish we had expressed that the weather might prove favourable was gratified as regards the first day, and our anticipation that the Show would prove to be the great floral event of the season is also fully realised.

Four large tents are devoted to the exhibits. One, the largest, is 150 long by 60 feet wide, and contains a grand bank of Orchids down the centre, one of the finest displays ever seen, both from amateurs and nurserymen. Around the sides of this tent are miscellaneous groups of plants. Another is 160 feet long, containing cut flowers and small plants; a third is 140 feet long, chiefly for Ferns; and a fourth is 100 feet long, and contains floral decorations, fruit, and miscellaneous exhibits.

Numerous medals and silver cups and certificates were awarded, but we were unable to obtain the lists in time for this report. We can also only give a summary of the principal exhibits, as the hour at which we go to press would not permit a detailed report.

ORCHIDS.

Baron Schröder, The Dell, Staines (gardener, Mr. Ballantine), has a magnificent group of Orchids, comprising some of the best of the treasures from the celebrated collection. One specimen of *Cymbidium Lowianum* about 6 feet in diameter with thirty long racemes of good flowers is very conspicuous at the end of the staging. Of the other plants *Cattleya Skinneri* is represented by a splendid specimen remarkably well flowered, *Cattleyas* in variety, *Lælias*, *Masdevallias*, *Odontoglossums*, *Cypripediums*, and hosts of varieties and grand varieties that would take a book to describe them all. The plants were arranged with *Adiantums* and other small Ferns with much taste, and the group was a centre of attraction to the visitors.

Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, has an exceedingly interesting collection of Orchids, mainly composed of *Cattleyas*, *Odontoglossums*, *Masdevallias*, and *Cypripediums*; but amongst them also are many curiosities, such as the strange little *Bulbophyllum barbigerum*, with its filamentous lip shaking about in the slightest movement of the air. The strange *Neottia nidus avis*, with numerous spikes of brown flowers, is also notable amongst the peculiar Orchids.

The Duke of Northumberland, Syon House, Brentford (gardener, Mr. Wythes), shows a group of *Cypripediums* and *Anthuriums*, with Palms and Ferns. H. M. Pollett, Esq., Fern Side, Bickley, has a beautiful group of *Cattleyas*, *Odontoglossums*, *Cypripediums* and other Orchids, including some fine forms of *O. vexillarium*. F. Wigan, Esq., Clare Lawn, East Sheen (gardener, Mr. Young), contributes a group of Orchids, a plant of *Vanda teres*, with two fine spikes of flowers, being the most notable. T. B. Haywood, Esq., Woodhatch Lodge, Reigate (gardener, Mr. C. J. Salter), has an effective group of *Odontoglossums*, *Masdevallias*, and *Cattleyas* arranged with small *Adiantums* and Palms.

Messrs. Sander & Co., St. Albans, have a magnificent group of Orchids, *Odontoglossum vexillarium* and *Lælia purpurata*, very beautifully represented by many varieties. *Dendrobiums*, the rose coloured *Phaius Henryi*, the beautiful *Odontoglossum excellens*, var. *Albert Edward*, and the hybrid *Odontoglossum Blcui splendens*, with some choice *Cattleyas*, one variety of *Mendeli*, named Prince of Wales, having a remarkably rich crimson lip. *Odontoglossum vexillarium*, with white flowers, was also notable. Mr. E. T. White, Winchmore Hill, sent a

collection of Cattleyas and Lælias. Messrs. Hugh Low & Co., Clapton, had a large group of small plants of Cattleyas, Cypripediums, and Dendrobiums, forming a fine bank, but a little too crowded.

Messrs. B. S. Williams & Son have an extensive group of Orchids arranged on the grass, and a capital effect is produced, as the plants and flowers can be readily inspected. *Lælia purpurata*, *Cymbidium Lowianum*, *Cypripediums*, *Masdevallias*, and *Oncidium*s were tastefully arranged with *Adiantums* and *Asparagus*.

Mr. James Cypher, Cheltenham, has a handsome group of Orchids, *Lælia purpurata* and several *Cattleyas* being represented by fine specimens; *Dendrobium*s suspended from bamboo stakes also formed a special feature of this group, *D. Falconeri delicata*, *D. Bensoniæ* with its varieties *splendens* and *album*, being the most conspicuous.

MISCELLANEOUS.

Specimen Roses from Messrs. Paul & Son, Cheshunt, form a magnificent group in one corner of the marquee. Then comes a charming collection of *Azaleas*, *Rhododendrons*, *Lilies*, *Spiræas*, *Maples*, *Gладиoli*, and *Hydrangeas* from Messrs. J. Veitch & Sons, Chelsea. Messrs. Laing and Sons, Forest Hill, have an imposing array of *Caladiums*, *Crotons*, and *Palms*, margined with *Tuberous Begonias* and *Orchids*. A group of *Niphetos* Roses edged with *Palms* and *Adiantums* from Mr. W. Rumsey, Waltham Cross, is very attractive. A dozen good specimen *Caladiums* from F. W. Wiltshire, Esq., Alverstone, Selhurst Road, South Norwood (gardener, Mr. Simmonds), also occupied a large space near the entrance to the large marquee. Messrs. W. Paul & Son, Waltham Cross, have a superb collection of Rose plants arranged in a crescent-shaped bank, and comprising some excellent varieties, including a gigantic new Moss Rose, *Crimson Globe*. Facing the dais is flower stem and plant of *Puya chilensis* about 6 feet high, bearing at the summit a dense spike of green flowers with prominent yellow anthers. This was sent from the Tresco Abbey Gardens, Isles of Scilly, where it had been grown in the open air. Behind the dais Mrs. W. Iceton, Putney, has a large group of *Palms* and other fine-foliage plants.

Handsome bushy *Rhododendrons* from Messrs. H. Lane & Son, Berkhamstead; richly coloured *Calceolarias* from Mr. J. James, Farnham Royal; *Pelargonium*s in many varieties, both of the Show and Fancy types, are shown by Mr. C. Turner of Slough.

Messrs. J. Peed & Sons, Roupell Park Nurseries, Norwood Road, have a large group of *Anthuriums* and *Sarracenias*, margined with *Ferns*. Beautiful globular specimens of *Clematis* from Messrs. R. Smith & Co., Worcester, occupy a position near one end of the large tent, and adjoining these was a group of miscellaneous greenhouse plants with *Palms* and *Ferns* from Messrs. Cutbush & Son, Highgate, forming a suitable finish to the tent.

The long tent (160 feet) is mainly occupied with cut flowers. Messrs. Kelway & Son, Langport, show *Pæonies*, *Pyrethrums*, and *Irises* in great numbers. Mr. T. S. Ware, Tottenham, has an extensive collection of hardy flowers. Messrs. Paul & Son, Cheshunt, also have a beautiful and varied collection of hardy herbaceous and alpine flowers; and Messrs. Barr & Son, King Street, Covent Garden, have an effective group of hardy plants. Messrs. H. Cannell & Son contribute *Tuberous Begonias* and *Caladiums* in capital condition. Messrs. J. Laing & Co., Forest Hill, have an admirable group of single and double *Tuberous Begonias*, representing some of the finest varieties in cultivation.

Filmy *Ferns* are not often seen at exhibitions in London, and the superb collection sent by Messrs. Backhouse & Son, York, to the Temple Show is one of the best ever seen. About sixty specimens are shown, the choicer or more delicate under bell-glasses. Mr. A. B. May, Upper Edmonton, had an enormous collection of *Ferns* filling 100 feet of tabling. All the best of the market *Ferns* are represented by small compact specimens, *Dracenas* and *Crotons* also being employed to impart colour to the display. Messrs. W. & J. Birkenhead, Sale, Manchester, contribute a most interesting collection of *Ferns*, comprising many species and varieties, all healthy little plants. Mr. W. Balchin, Hassocks, has a group of the brilliant blue *Leschenaultia biloba major*. Mr. R. Miller, Shoreham, has a group of the new Regal *Pelargonium* Pearl, pure white, and very free, while Mr. F. Hooper, Bath, and Messrs. Dobbie & Co., Rothesay, stage *Pansy* flowers in large numbers.

Messrs. Sutton & Sons, Reading, contribute an extensive collection of *Gloxinias* in pots, representing a remarkably fine strain and many excellent varieties. Messrs. J. Veitch & Sons, Chelsea, also have a beautiful group of *Gloxinias* arranged with *Ferns* and a bank of *Ixias*, *Pæonies*, *Irises*, *Ranunculus*, and other hardy flowers. Mr. G. Phippen, Reading, show numerous bouquets, wreaths, and floral decorations. Messrs. Cannell & Sons exhibit stands of *Pelargonium*s. Messrs. W. Paul & Son show ten boxes of *Rhododendrons*, and Mr. B. S. Williams, Upper Holloway, has a collection of fine *Ixias*. Messrs. Perkins & Son, Coventry, show some magnificent wreaths, bouquets, and baskets of flowers, *Orchids* and *Roses* being largely employed.

FRUIT AND VEGETABLES.

These were represented, though not extensively. Mr. George Monro, Covent Garden, exhibits the most meritorious collection, consisting of splendid *Melons*, *Strawberries*, *Grapes*, and *Figs*; also *Cucumbers*, *Tomatoes*, *Peas*, and *Kidney Beans* of high excellence. A silver-gilt medal was recommended. J. F. Campbell, Esq., Woodseat, Uttoxeter (gardener, Mr. J. Hollingworth), sent baskets of excellent *Black Hamburgh* and fine bunches of *Foster's Seedling Grapes* (silver medal). Mr. J. R. Featherby, The Vineries, Gillingham, exhibits remarkably

fine *Black Hamburgh Grapes*, very large in berry, and uniform; also very good *Tomatoes* (silver medal). E. Pettit, Esq., Broadwater, Weybridge (Mr. Reed, gardener), sent very good *black Grapes*, *Peaches*, and *Tomatoes* (bronze medal). A similar award was adjudged to J. L. Mansell, Esq., Somerset Terrace, Guernsey, for a basket of very good *Muscad Grapes*. A cultural commendation was granted for very fine *Auguste Nicaise Strawberries* from the Duke of Northumberland, Syon House (Mr. G. Wythes, gardener).

Messrs. James Veitch & Sons contribute a collection of forty-three dishes of admirably kept *Apples*, for which a silver medal was recommended. A fruiting tree of the *St. John Fig*, staged with the *Apples*, arrested attention. It is said to be the earliest *Fig* in cultivation, and to retain its fruit crop better than any other variety, and on a length of about 8 inches of last year's wood as many uniformly sized fruits were approaching maturity. Mr. G. Bunyard had forty-five dishes of *Apples*, many of which had probably been honoured in previous campaigns, and had seen their best days (bronze medal). Mr. Mayers, The Gardens, Stoke Court, Slough, was awarded a vote of thanks for *Peaches* and *Nectarines*, as was Mr. Miller, Ruxley Lodge, for *Peaches*, *Melons*, and *Mushrooms*. Mr. James Hopkins, High Cross, Framfield, Sussex, sent specimens of the *High Sheriff Cucumber*.

An extensive and interesting collection of forty-four varieties of *Radishes* came from the Society's Gardens at Chiswick, and the following were chosen for awards of merit:—*Turnip* varieties, *Scarlet Forcing*, *White Round* (Veitch) and *Scarlet White Tipped*: *Olive Shaped*, *Scarlet Olive Shaped* (Veitch), and *French Breakfast*: *Long-rooted*, *Wood's Long Frame*, and *Long White*. Several varieties of *Rhubarb* are also exhibited.



HARDY FRUIT GARDEN.

APRICOTS.—The crops on all trees not well protected when in bloom are very scanty, and they are also very irregular even where good care was taken of them. None of the long spurs, or those that stand well out from the branches, are furnished with fruit, while those short spurs very close to the wall are bearing fruit in great clusters, this being proof positive of the unwisdom of encouraging the growth and retention of long spurs. Comparatively light as the crops may be, it is yet advisable to early thin out large clusters of fruit, or otherwise very few well developed fruit will be obtained this season. So unusually thick are these clusters of fruit that it is necessary to lightly thin them out at once, completing the thinning when the fruits are large enough to use in a green state.

Thinning the growths is most necessary in the case of young trees and branches generally. The shoots on these ought to be thinned to about 3 inches apart, those best placed only being reserved, and all not required for furnishing blank space duly stopped to a length of about 2 inches. The leaders in all cases to be allowed to grow unchecked, and wherever there is space for a young branch reserve and lay in a shoot now. It is the young branches that produce much the finest fruit in abundance, and seeing also that numerous old spurs, and frequently whole branches, are apt to die somewhat suddenly, and from unpreventable causes, this is another reason for having young branches coming from the base of the tree especially, in readiness to take their place. Where there are moveable blinds over the trees these ought not yet to be taken down, as they are of good service during the prevalence of cold winds.

PEACHES AND NECTARINES.—These have flowered very freely, and a moderately heavy crop of fruit is set in spite of the frosts experienced while they were in bloom. Any light protecting material, including treble fish nets, that may have been used should not be too hastily dispensed with, though if somewhat closely woven blinds are used these ought to be withdrawn on mild still days, the protection being needed only when cold easterly winds prevail. When the disbudding and stopping takes place allow the leading shoot on all fruiting branches to extend, and also lay in a young growth to its full length from near the base of every fruiting shoot, or wherever there is space for it. Remove any shoots were not required for supporting fruit, and stop all left for the latter purpose at the fourth joint. In the case of quite young trees reserve and lay in shoots wherever they are required for furnishing blank space, and either remove or stop the rest.

PLUMS.—In all probability the crops of these will be light, but that is no reason why the wall trees especially should be neglected. The aim should be to furnish all blank space with young bearing wood in preference, it may be, to stunted old growth, which is liable to collapse in much the same manner as *Apricots* do. By thinning out the shoots, stopping most of those reserved at a distance of 2 inches from their base, this will greatly benefit those left intact for laying in to their full length, and also tend to quickly clothe the older branches with fruiting spurs. In many instances the main branches become somewhat bare of spurs and foliage, and where possible ought to be covered with young shoots, these if possible tied over them, protecting from

injurious sunshine, and also providing more fruiting branches. Where good clusters of fruit are set these ought to be early thinned out, the final thinning being completed according as the green fruits are fit for cooking.

CHERRIES.—There is every probability of heavy crops. Much that has been advanced concerning Plums also applies to Cherries other than the Morello, which last bears fruit principally on young shoots pruned during the previous season. The spurs ought to be formed about 4 inches or rather more apart on the branches, the young shoots being thinned out accordingly, and those reserved stopped at the fourth or fifth joint. Young branches of these should be laid in to their full length wherever there is good space for them, crowding, however, being most unwise. Cherries are not often thinned, but it is advisable if extra fine fruit are desired. The trees are frequently early infested with black aphid, but timely washings with some kind of insecticide, or a decoction of quassia chips and softsoap, prevent much injury being done.

PEARS.—As a rule these are setting better than is sometimes the case when the trees are extra floriferous. Directly it is seen a heavy crop of fruit is set, the thinning out should be commenced, and be somewhat severe, or most of the fruit may drop. A close look-out must be kept for egg-covered leaves and caterpillars. It is the timely stitch, or hand-picking, that frequently preserves the crops and foliage from caterpillars. Pear growth on wall trees is early and strong, the shoots being invariably the most crowded and forward at the points of leading branches. These ought to be freely thinned out, leaving those only where either a fresh branch or a fruiting spur is needed. The former to be allowed to grow unrestricted, and the latter stopped at the fourth or fifth leaf or joint. Young trees especially ought to be well attended to, an early and strong growth on these being desirable.

GOOSEBERRY HOUSES.—There must now be plenty of openings in these, in order to give access to birds that prey upon caterpillars. Exclude these, and the trees may be quickly cleared of leaves and the crops spoilt.

FRUIT FORCING.

PINES—Under good management the finest fruits develop when they show from ten to twelve months from the time the suckers were first potted, but some allowance must be made for autumn potted suckers, which have to make part of their growth under adverse influences. Plants that were finally potted last September will now be showing fruit, and if not means should be adopted to effect it. Plants of that age not exhibiting signs of fruiting should be subjected to comparative rest for a period of four to six weeks, lowering the heat at the roots to 75°, and admitting air fully at 75° to 80°, and letting the temperature fall to 75° before closing the house for the day. Very little artificial heat will be necessary, but it must be afforded if necessary to prevent the night temperature falling below 60°. The plants must not be allowed to become excessively dry at the roots, but whenever a plant needs it afford water liberally. The smaller suckers potted this spring should be kept growing until the pots are well filled with roots, then, if it be necessary, the plants can be subjected to the same course of treatment as advised for the larger plants, and these will afford a successional supply of fruit.

The strongest suckers potted last March should be in their largest pots. If they are not yet in them no further delay should be tolerated, as to retain them long in small pots is detrimental to aftergrowth. Recently potted plants should have a regular bottom heat of 85° to 90°, and be copiously watered after potting, then no more should be given until the soil becomes dry, as it is necessary to exercise more care than usual at this stage, the state of the individual plants being ascertained before watering.

Young stock will be making rapid progress, and should be regularly attended to in every particular, allowing the plants sufficient space for development, as nothing is so inimical as crowding them in their early stages. Ventilate early in the day at 75° to 80° to dry the foliage before it is affected by the sun. Discontinue shading successional plants, but for fruiting plants with the crowns in close proximity to the glass slight shade from powerful sun will be necessary to prevent scorching.

PEACHES AND NECTARINES.—*Early Houses.*—Hale's Early, Early Alfred, and Early York are excellent in quality, forming an admirable succession to the very early Peaches Alexander and Early Beatrice, and are closely followed by Royal George, which, with Stirling Castle, is the most certain and best coloured of Peaches early forced, but Dr. Hogg is a large well coloured fruit of good quality with a rather firm flesh, which enhances its value when fruit has to be packed. Lord Napier is the best of the early Nectarines, but it is not a good colourer, being surpassed by much smaller varieties, such as Hunt's Tawny, which invariably colours well. Admit plenty of air to the ripening fruit in the daytime, and at night also if a prolonged succession is required. When the crop is gathered resume syringing to cleanse the foliage from dust and red spider. The border must be maintained in a thoroughly moist state, as it is important that the foliage be kept clean and healthy as long as possible. The trees after fruiting should have the wood which carried the fruit cut away to the shoot at the base for next year's fruiting, excepting those needful for the extension of the trees, and if the trees are too full of wood thin well so as to admit light and air to the shoots, and thereby insure their thorough ripening.

Succession Houses.—No great amount of artificial heat will now be necessary except in cold and dull weather, especially when the fruit is taking the last swelling or commencing ripening, to admit of a free circulation of air. Remove any leaves that shade the fruit too much, so

that it may colour perfectly at the ripening period. The tying-in of the shoots must be regularly attended to, stopping the laterals at the first joint, and any shoots that cannot be allowed to extend without crowding or encroaching on others stop at about 14 inches, exception being made of extensions. Shoots retained level with or past the fruit to attract the sap to it should be stopped to one or two joints at each break. Syringing must be vigorously followed up morning and afternoon to keep red spider under, and the inside border attended to frequently with water. Admit air early in the day, as with large panes of glass the sun often acts so powerfully on the foliage as to scorch it unless air has been previously admitted.

Late Houses.—Thinning the fruit must be attended to; very few more should be left after the fruit attains to the size of a Walnut than will be required for the crop, up to which stage the thinning should be gradual, and avoid over-burdening the trees, it being better to retain too few rather than too many fruits, as fine examples are always appreciated, while those lacking in size and quality are a source of complaint. It is a mistake to retain more shoots than there is room for, as if the wood is not properly solidified as made, imperfectly formed buds result. If aphides appear fumigate on two or three consecutive evenings, having the foliage dry, using a solution of softsoap, 1½ to 2 ozs., to the gallon of water for arresting red spider, and against mildew dust with flowers of sulphur, use sulphur water, or employ sulphide of potassium.

MELONS.—*Plants in Houses.*—The weather has been most favourable of late for imparting a rich flavour to Melons. The night air has been sharp, necessitating the employment of fires. At night the temperature may range from 60° to 65°, 70° to 75° by day being secured artificially, admitting a little air at and above the latter, allowing an advance to 85° or 90°, closing at 80° to 85°, but not so as to raise the temperature beyond 90° to 95°. Keep plenty of moisture in houses containing young growing plants or those swelling the fruit, gently damping the foliage, walls, floors, &c., and closing at about 3.30 P.M., or so early as safe. Feed plants liberally that have their fruits swelling, not allowing them to suffer through deficient supplies of water, and afford weak liquid manure. Fertilise all pistillate flowers daily to set the fruit, ensuring a somewhat dry atmosphere, not using the knife during that period, but pinch out the points of the shoots one or two joints beyond the fruit. Earth up the roots as soon as the fruit is set and swelling, and examine the plants frequently for the removal of superfluous growths, not allowing them to interfere with the principal foliage. Shade as little as possible, and only to prevent flagging.

When the fruit is cut from the earliest plants the old stem may be cut back to a strong shoot near its base, removing as much of the surface soil as can be picked out from among the roots, replacing with rather strong lumpy loam pressed well down, and giving a good watering. A moist atmosphere being maintained and the plants syringed in the morning and about 4 P.M. they will soon start freely, showing fruit in much less time than by planting afresh. If, however, the plants are affected with canker, or from carrying too heavy a first crop of fruit, a deficiency of water or attacks of insects, are much enfeebled, it is better to remove them, thoroughly cleansing the house, placing strong plants in ridges or hillocks as advised in former calendars.

Plants in Pits and Frames.—When fruits are ripening they should be exposed to the sun by raising them on inverted flower pots on a piece of slate. Admit air freely, and apply water only to prevent the foliage flagging. If a second crop is desired encourage about four shoots from each plant from the base of the stems now bearing, so that when the fruit is cut the old growths may be removed and young shoots substituted. These will show fruit freely on the first laterals, every alternate lateral being rubbed off to prevent overcrowding. If a top-dressing of fresh compost be given, supplemented with a good watering with liquid manure, not too strong, at 90°, the plants will be assisted to make a vigorous second growth. A useful crop of Melons may be obtained by making up beds now of any spent material, which from mixing and turning will generate a gentle warmth, placing over it frames which have been used for Potatoes, bedding plants, &c., placing in each light about two or three barrowfuls of rather strong loam mixed with some old mortar rubbish or road scrapings if deficient of grit, and pressing it down firmly. Into this, when warmed, turn out a strong healthy plant, pressing the soil firmly about the roots, and give a good watering. If pits are employed the surface of the soil must be about a foot from the glass, and if the weather be bright afford shade for a few days after planting. Seed may yet be sown to raise plants for frames at present occupied by tender bedding plants.

STRAWBERRIES IN POTS.—Strawberries have been excellent, the runners were established in good time, and there is nothing like stored matter the season previous to forcing, especially in respect of early forced plants. If there is nothing in them it is quite clear nothing can be had out of them. Successional plants are affording excellent fruit. Copious supplies of water are necessary, especially in the early stages of swelling, for should the plants once lack that essential the fruit may be so dried as not to swell kindly afterwards, and a somewhat moist condition of the atmosphere is necessary to obtain well swelled berries; therefore avoid drying currents, especially of cold air. The plants should be watered two or three times a day, according to the weather, and have liquid manure two or three times a week until the fruit commences colouring, after which give water only sufficient to prevent the foliage flagging. This, with plenty of air, is conducive to flavour. Plants that are swelling their fruit under large panes of glass will be the better for a slight shade from powerful sun for an hour or two at midday. They will swell to a much finer size, and it will not interfere with the quality if it is not continued too long. The drying influence

of powerful sun acts prejudicially in the early stages of swelling, especially when the necessity arises of admitting air very freely, which the slight shade obviates; otherwise afford all the light practicable, in order to secure good colour and high quality.

THE BEE-KEEPER.

APLARIAN NOTES.

THE WEATHER.

SINCE the 21st inst. there has been a great rise in temperature, the mean being 62½°; previous to that, from the 6th, rain fell every day. Apple blossom is later than usual. There being no frost in May, Plums are still flowering. Cherries do not appear to have set well, and while in flower rain was almost constant, so they were not of much service to bees.

GLEANINGS.

In various things the Americans are rapidly coming to our views on hives and bee management. The alteration of top bars of hives to our ideas has engaged their attention for some time past. Disliking the expense of metal ends and broad-ended frames, as well as those without distancers, they are adopting brass nails with round heads, which we have used since 1862, but abandoned them long since for shoe tacks, two only being required for each bar, instead of four as they have started with. But I feel confident, for obvious reasons, they will be given up for our plans.

BEEs MAKING WEIGHT.

A correspondent from the West Highlands writes that from the last day of April till the 17th May the weather was fine, and the bees had gathered as much honey from the Sycamores as would tide them over a bad time. In Lanarkshire many supers have been filled, and my own hives have in the two days of fine weather increased considerably in weight. All bee-keepers in unsheltered situations complain of the great loss of bees during the dull showery weather. From everywhere reports come that unfed hives lost fewest bees. As is always the case, they have advanced the most steadily, and are most likely to be the most profitable.

AGED BEES.

During the beginning of August a few black bees, part of a swarm, flew on to a pure Carniolian. They are still alive, and showing no signs of decay or weakness. In the same hive a young yellow bee, similar in every respect to the brightest coloured Syrian, was found, and this the third generation from a pure imported Carniolian that was said to be bred from Carniolians without yellow markings, and are extra honey gatherers.

FOUL BROOD.

So much has been written upon this subject that at first sight it might seem superfluous to say another word. Neither would I, but for the fact that new phases of the disease are frequently coming before us. About the year 1862 I submitted to Mr. Woodbury my opinion that foul brood might be inherited by the queen, but that gentleman scouted the idea, and I had little else to support my argument than surmise. Mr. F. Cheshire is of opinion that queens do transmit the disease, which they inherit. I differ from Mr. Cheshire in this, because when once a queen has contracted bacilli or micrococci (I have found both, as well as other forms, in one experiment) they do their work quickly, and the queen must either die or be deposed. Gemination takes place so quickly that I have witnessed the linear form multiply four and five times in a few minutes. For many years I had reasons to suspect that bees leaving their hive *en masse* during spring was due to incipient foul brood, but it is only within these few years I came to the conclusion that it was due to a diseased condition of the queen. These germs of disease take readily to albuminous matter in the queens, but apparently do not permeate the whole system of the bee as their allied species do in the human frame. Of suspected queens I have examined many, and have found 70 per cent. of the fly-away queens diseased, and in 50 per cent. of the hives vacated have found traces of foul brood.

CAUTION.

The beginner, probably having been greatly impressed with the importance of built comb, will naturally be inclined to utilise the combs of fly-aways. On no account should this be done unless there is the slightest signs of an unhatched cell, and even in cases where there is not, it would be injudicious to use them. Frequently we have witnessed eggs dried up lying in the bottom of the cell, which in all probability contains infection. It is far better to melt the combs and see to the proper disinfection of the hive.

First store these in a somewhat damp but warm place, say 65°. When a mould is over them remove them to a close chamber over a charcoal fire, with a little sulphur added. After they have been submitted to this ordeal for several days, wash with a solution of carbolic acid, when the hive may be safely set aside for further use.

CURE OF FOUL BROOD.

I will not argue that it cannot be done, but it is so difficult to manage, and so uncertain, that it may be considered good advice not to attempt it, even although it was within the limits of possibility, and certainly it will not pay. The summer is too short to be curing a hive and getting surplus honey at the same time. Do not then tamper with so insidious a disease, but stamp it out. Acids and alkalies have all been tried, but save as preventives have all been failures. Carbolic acid, camphor, thymol, and menthol are chemically the same. Many of our native herbs contain camphor. Formic acid has been suggested, and even said to have effected cures, but I have no faith whatever in the statement. Such nostrums as alum, and alum and sugar of lead for the treatment of stings suit dealers but not sensible bee-keepers, and the same suspicion rests on formic acid as a cure for foul brood.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

Pitcher & Manda, Short Hills, New Jersey.—*Lists of Cypripediums and Other Orchids.*

Dammann & Co., Naples.—*Catalogue of Plants.*



All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Potatoes without Haulm (W. J. W.).—Thanks for the offer. We have seen many such examples as those you describe.

Destroying Weeds (A. C.).—Properly applied the vitriol will destroy all deep-rooted weeds. The sand will not do so, but rightly used kills Daisies. Only very short replies can be given to Wednesday morning's letters.

Fungus in Soil (D. W.).—The mycelium in the soil is not dead. We know of nothing safer and more likely to check the increase of the fungus than periodical applications of clear lime water. About a peck of unslaked lumps of lime stirred in thirty or forty gallons, and then allowed to get clear, will be suitable for application. So long as there is any sediment at the bottom of the vessel the lime water will be as strong as it can be made. If there is no sediment it will not be so strong as it should be for the purpose in question.

Clematis montana not Flowering (T. F. W.).—Perhaps your plant has grown luxuriantly and the growths are crowded. If they are trained a foot apart on a sunny wall the wood will ripen, and flowers follow in abundance. The plant does not require rich soil, but likes moderately firm ground with lime in it. Perhaps the soil of your garden is too rich and the growth of the plant exuberant, and in this case driving a sharp spade down its full depth in a half circle 3 or 4 feet from the stem might arrest its vigour and predispose to the production of flowers; but thin training is of the greatest importance.

Mildew on Vines (Perplexed).—The safest remedy is to dust the affected parts with sulphur and let it remain on them for a few days. You might try experimentally and on a few leaves only the remedies to which you allude, but we do not advise their general application in the absence of knowledge on the actual condition of the Vines. You did not ask an explicit question beyond that to which we replied in your former letter, though no doubt you intended doing so. The letter before us is somewhat vague, and no reference is made to the state of the Vines and the parts affected. A confined atmosphere and, especially, too late morning ventilation, not unfrequently lead to mildew attacks.

Fungus on Pear Leaves (T. P.).—The leaves are infested with a fungus, which causes the raised spots or blotches, first appearing greenish yellow and afterwards brownish red. These spots occur on both surfaces of the leaves, preventing a due performance of their functions; and if they do not fall a prey, as rarely happens, to the fungus, the fruit, if it survive the attack, succumbs, or is rendered useless by an attack of another fungus, which causes it to "pit" and crack. There is no present remedy. It is found, however, that trees which are lifted and have the roots laid in fresh loam nearer the surface have better textured foliage, their cell walls being hardened and better able to resist attack. This we advise you to do in autumn, adding some old mortar rubbish, or preferably marl, to the extent of a sixth, mixing it well with the soil, removing the worst infested of the leaves now and burning them.

A Curious Letter—Tuberous Begonias (J. W. S.).—When a person admits his inability to accomplish an object, and asks for and obtains the best assistance that can be given as founded on a vague letter, then tells those who describe sound principles of action, as proved by successful experience, that their ignorance is on a par with his own, he may be fairly regarded as peculiar in his views and curious in his expressions. Tuberous Begonias are raised from seed and grown into floriferous plants the same year by numbers of persons, and you can be directed to see, say, 50,000 of such plants in September if you wish. There are some named varieties which cannot be grown into large specimens by the most expert cultivators. Caladiums from 12 to 18 feet in circumference, are grown with the pots, after they are crowded with roots, stood in large saucers of water; also without if the pots are stood on a bed of damp ashes. *Tropæolum azureum* flowers beautifully in a greenhouse at Chiswick every year. We simply mention these facts, but as you do not ask for cultural information we presume you do not require it. Mercantile terms are commonly applied to chemical manners. It is quite true there is a great deal of nonsense written on other things than chloride of potassium. If you require information on any particular plants and state your conveniences for growing them we shall be certainly willing, and perhaps able, to describe methods which have resulted in success.

Hardy Abutilon (C. A. M.).—There is an Abutilon which passes the winter outdoors in warm positions in the southern counties, also we believe in Ireland. It is *A. vitifolium*, and is said to have been introduced into Ireland from Chili by Captain Cottingham, in 1836. It had white flowers, and there is also a lavender coloured variety. *A. vitifolium* was illustrated in the *Journal of Horticulture* of August 23rd, 1888, with the following remarks, from which you will gather the desired information:—"Last year a correspondent in Cornwall sent us a note upon this beautiful Abutilon, in which he remarked that he had 'a specimen 14 feet high and 32 feet in circumference at 6 feet from the ground, growing out of doors in a position sheltered from the north-east and west, where it flowered most abundantly every year.' Very rarely are such examples seen out of doors, and it is only in favoured climates like the west of England or some districts in Ireland where these results could be expected. In most cases where it is found in gardens it is an inmate of the greenhouse, and very seldom can an adequate idea be then formed of the beauty of the shrub when fully developed. The flowers are large, of a delicate purplish or bluish mauve, not unlike the stately *Meconopsis Wallichii* in tint and form. They are produced in great abundance, and in contrast with the large dark green lobed leaves they have a fine appearance. Messrs. Kelway & Son, Langport, recently showed some specimens at one of the Royal Horticultural Society's meetings, when a first-class certificate was awarded for it as a half-hardy shrub."

Peach Leaves Blistered (J. J. F.).—The leaves are badly infested with a fungus, which is the result probably of chilled and sluggish sap, and destroys the tissue of the leaves. There is no means of destroying the fungus, as it works inside the leaves, except by removing the worst infested and burning them. This should be done gradually, so as not to deprive the trees of too much foliage and cause a chill, or the fungus may spread to the young shoots. The parts removed should be burnt. As the trees are also infested with insects they should be well and forcibly syringed with a solution of soft soap, 2 ozs. to the gallon of water, adding about half a pint of tobacco juice to a 3-gallon watering-can of water, and repeating as necessary, until the foliage is thoroughly clean. Mild weather should be chosen—calm evenings when there is not likely to be frost during the night. As the disease is caused by cold, efficient means of protection should be provided, so as to safeguard the tender foliage from the chilling influence of frost and cold. As the weather gets warmer the better foliage will follow if it is free from aphides. Follow the syringing with the soap solutions, with clear water in a day or two, so as to thoroughly cleanse the foliage. Insecticides should be applied much earlier another year, and protection afforded from cold winds. A continuance of such attacks will ultimately ruin the trees.

Pruning Marechal Niel Roses (Cork).—You neither state the age nor size of the Roses, nor how they were pruned after planting. From your description of the flowers we are led to suppose the stems have not been pruned sufficiently, hence the roots were inadequate to produce strong growth and fine blooms. You had better let the soil get dry, and keep the atmosphere of the house dry also for a week, then cut down the stems to good eyes at the base of the wood made this year. After this keep the roots moderately moist, not saturated, also syringe frequently, and maintain a moist atmosphere; then young growths may

be expected to push quickly and grow to a length of several feet in time for ripening in the autumn for producing better flowers next year. You do not say whether the Roses are planted out or not, nor indicate the nature of the soil, and on this depends the answer to your question on sulphate of ammonia. If they are planted out it may be applied at the strength of half an ounce to a gallon of water, but it is more of a stimulant than a food, and cannot alone long suffice for the health and sustenance of the plants. We shall shortly publish an article on the cultivation of this Rose under glass, written by a gardener who has cut 2000 blooms from a lean-to house 30 feet by 16 feet this year, and his experience ought to be useful to you and your gardener.

COVENT GARDEN MARKET.—MAY 28TH.

A GENERAL improvement in business, with supplies of all classes of goods heavy, and prices easier all round.

FRUIT.		s. d.		s. d.	
Apples, ½ sieve	2 0 to 6 0	Melons, each,	2 0 to 4 0	Oranges, per 100	4 0 9 0
" Nova Scotia and	18 0 25 0	" Canada, per barrel	15 0 20 0	Peaches, dozen	4 0 18 0
" Tasmanian, p. case	15 0 20 0	Grapes, per lb.	2 6 4 0	Red Currants, per ½ sieve	0 0 0 0
Lemons, case	10 0 15 0	Lemons, case	10 0 15 0	St. Michael Pines, each..	2 0 6 0
				Strawberries, per lb. ..	1 6 6 0

VEGETABLES.		s. d.		s. d.	
Artichokes, dozen	0 0 to 0 0	Mushrooms, punnet ..	1 6 to 2 0	Mustard & Cress, punnet	0 2 0 0
Asparagus, bundle	2 0 4 0	Onions, bushel	3 0 4 0	Parsley, dozen bunches	2 0 8 0
Beans, Kidney, per lb. ..	1 6 0 0	Parsnips, dozen	1 0 0 0	Potatoes, per cwt.	3 0 4 0
Beet, Red, dozen	1 0 2 9	" New, per lb.	0 2 0 6	Rhubarb, bundle	0 2 0 0
Brussels Sprouts, ½ sieve	0 0 0 0	Salsafy, bundle	1 0 1 6	Scorzenera, bundle	1 6 0 0
Cabbage, dozen	1 6 0 0	Seakale, per bkt.	0 0 0 0	Shallots, per lb.	0 3 0 0
Carrots, bunch	0 4 0 0	Herbs, bunch	0 2 0 0	Spinach, bushel	1 0 2 0
Cauliflowers, dozen	2 0 4 0	Leeks, bunch	0 2 0 0	Tomatoes, per lb.	1 0 1 6
Celery, bundle	1 0 1 3	Lettuce, dozen	0 9 1 3	Turnips, bunch	0 4 0 0
Coleworts, doz. bunches	2 0 4 0				
Cucumbers, doz.	2 0 3 6				
Endive, dozen	1 0 0 0				
Herbs, bunch	0 2 0 0				
Leeks, bunch	0 2 0 0				
Lettuce, dozen	0 9 1 3				

CUT FLOWERS.		s. d.		s. d.	
Auemeou, dozen bunches	1 0 to 4 0	Mignonette, 12 bunches..	2 0 to 4 0	" Fr., large bnch	1 6 2 0
Arum Lilies, 12 blooms ..	2 0 4 0	Narcissus, 12 bunches ..	2 0 6 0	Peony, dozen bunches ..	6 0 12 0
Azalea, dozen sprays	0 6 1 0	Pansies, dozen bunches ..	1 0 2 0	Pelargoniums, 12 trusses	0 9 1 0
Blue Bells, dozen bunches	0 0 0 0	" scarlet, 12 bnchs	4 0 6 0	Deutzia, per bunch	0 4 0 6
Bouvardias, bunch	0 6 1 0	Eucharis, dozen	4 0 6 0	Forget-me-not, doz. bnch.	1 6 4 0
Carnations, 12 blooms ..	1 0 2 0	Forget-me-not, doz. bnch.	1 6 4 0	Gardenias, 12 blooms ..	1 6 3 0
Cowslips, dozen bunches	0 6 1 0	Iris, various, dozen bnchs.	6 0 18 0	Lapageria, 12 blooms ..	2 0 4 0
Deutzia, per bunch	0 4 0 6	Lilac (Eng.), doz. bunches	4 0 3 0	Lilium, various, 12 blms.	1 0 3 0
Eucharis, dozen	4 0 6 0	" longiflorum, 12 blms.	3 0 6 0	Lily of the Valley, dozen	0 6 1 0
Forget-me-not, doz. bnch.	1 6 4 0	" dozen bunches	4 0 9 0	Marguerites, 12 bunches	2 0 6 0
Gardenias, 12 blooms ..	1 6 3 0	Maidenhair Fern, dozen	4 0 9 0	bunches	4 0 9 0
Iris, various, dozen bnchs.	6 0 18 0				
Lapageria, 12 blooms ..	2 0 4 0				
Lilac (Eng.), doz. bunches	4 0 3 0				
Lilium, various, 12 blms.	1 0 3 0				
" longiflorum, 12 blms.	3 0 6 0				
Lily of the Valley, dozen	0 6 1 0				
" dozen bunches	4 0 9 0				
Marguerites, 12 bunches	2 0 6 0				
Maidenhair Fern, dozen	4 0 9 0				
bunches	4 0 9 0				

PLANTS IN POTS.		s. d.		s. d.	
Aralia Sieboldi, dozen ..	6 0 to 12 0	Geraniums, Ivy, per doz.	5 0 to 9 0	" Scarlet, per doz.	4 0 9 0
Arum Lilies, per dozen ..	3 0 12 0	Hyacinths, 12 pots	0 0 0 0	Lily of the Valley, 12 pots	12 0 18 0
Arbor Vitæ (golden) doz.	6 0 14 0	Lobelia, per doz.	4 0 6 0	Marguerite Daisy, dozen	6 0 12 0
Azalea, various, per dozen	18 0 30 0	Mignonette, per dozen ..	5 0 8 0	Cyclamen, per dozen ..	2 0 4 0
Calceolaria, per doz. ..	6 0 9 0	Myrtles, dozen	6 0 12 0	Dracena terminalis, doz.	24 0 42 0
Christmas Rose	0 0 0 0	" viridis, dozen	12 0 24 0	Epiphyllum, per dozen ..	0 0 0 0
Cineraria, per dozen ..	5 0 9 0	Erica, Cavendish, per pt.	2 0 3 0	" various, dozen	12 0 18 0
Cyclamen, per dozen ..	0 0 0 0	" ventricosa, per doz.	12 0 18 0	Euonymus, var., dozen ..	6 0 18 0
Deutzia, 12 pots	6 0 9 0	Evergreens, in var., dozen	6 0 24 0	Ferns, in variety, dozen..	4 0 18 0
Dracena terminalis, doz.	24 0 42 0	Ficus elastica, each	1 6 7 0	Foliage plants, var., each	2 0 10 0
" viridis, dozen	12 0 24 0	Fuchsia, per doz.	6 0 9 0	Genista, per dozen	8 0 12 0
Epiphyllum, per dozen ..	0 0 0 0				
Erica, Cavendish, per pt.	2 0 3 0				
" various, dozen	12 0 18 0				
" ventricosa, per doz.	12 0 18 0				
Euonymus, var., dozen ..	6 0 18 0				
Evergreens, in var., dozen	6 0 24 0				
Ferns, in variety, dozen..	4 0 18 0				
Ficus elastica, each	1 6 7 0				
Foliage plants, var., each	2 0 10 0				
Fuchsia, per doz.	6 0 9 0				
Genista, per dozen	8 0 12 0				

Bedding Plants in variety, in boxes and pots:

HOME FARM

CALF REARING.

BREED right, feed right, shelter right, sell right is the comprehensive if brief summary of the simple fundamental rules of

calf rearing. It is not our intention now to enter upon the question of breeding, and we at once turn to details of rearing calves which may assist our readers. New milk for a month, beginning with a gallon daily and gradually increasing the quantity till it is about doubled. For the next two or three months skim milk, thickened with 1 lb. of boiled linseed, linseed meal, or oat-meal twice daily; a little sweet hay as soon as it can be taken; then green food, such as Rye, followed by Trifolium, Tares, and Clover; a little crushed Waterloo cake is also sometimes given, but we prefer not to use much of this till slop feeding ends. Grazing with a run upon grass follows in due course, and is practised generally for the sake of economy. With a covered yard and cut green food going for other stock calves are often kept in altogether, and many excellent cattle owners consider that they are more thrifty with such shelter than when exposed to worry from flies and sudden changes of weather. Whichever plan is followed a sufficiently liberal mixed dietary is all-important to afford full sustenance to them. Feeding should keep pace with growth, and be it remembered that the calf is remarkable for rapidity of growth under sound treatment. There must be no check, but rather a steadily progressive scale of feeding, and the excessive use of rich forcing food is to be avoided. For early calves the new milk and the mixed skim milk and gruel should be used at a temperature of 95° to 98°, which Professor Sheldon tells us is the temperature of milk as it comes from a cow's udder.

Any sudden change of diet is to be avoided, and it is for this reason that dry food is given before the milk is withheld altogether. Bran, crushed oats, meal, and Waterloo cake are gradually added, and as milk is withheld more water is required. There is still a lot of Mangold in hand from the fine crop of last year, and some of them passed through a mincer make a wholesome addition to other food. The first crop of Rye is in ear, and if it is used it must be cut into chaff, but there is plenty of other green food for choice now.

Much advertised condimental food should be used with caution. A little of it mixed with the other food renders it more palatable; by giving tone to the stomach it tends to keep off scour; and as a promoter of health it is valuable. For the sake of economy, as well as having a pure condiment, we give a recipe by Mr. Pringle in his "Live Stock of the Farm," which can be made at a cost of £12 10s. per ton, or about one-fourth of the ordinary price:—

	cwts.	qrs.	lbs.
Locust beans, finely ground...	6	0	0
Indian corn " " ...	9	0	0
Linseed cake " " ...	3	0	0
Powdered turmeric ...	0	0	40
Sulphur ...	0	0	40
Saltpetre ...	0	0	20
Liquorice ...	0	0	27
Ground ginger ...	0	0	3
Aniseed ...	0	0	4
Coriander ...	0	0	10
Gentian ...	0	0	10
Cream of tartar ...	0	0	2
Carbonate of soda ...	0	0	6
Levigated antimony ...	0	0	6
Common salt ...	0	0	30
Peruvian bark...	0	0	4
Fenugreek ...	0	0	22
	20	0	0

This may be used with advantage for steers throughout the eighteen or twenty months of their existence, and also for pigs and sheep. It promotes a healthy condition in all animals, and is of especial value for helping on select beasts for the show yard.

Shelter is of great assistance to feeding, and it is claimed by those who not only rear their calves in snug buildings, but never turn them out to graze, that they are fed at less cost, and are ripe for the butcher earlier than those which have two summers on pasture. We have heard it said recently by tenant farmers who

were advised to rear more stock, "It is all very well to give us such advice, but we have no suitable buildings, and it is useless to ask landlords to build now that rents have fallen so much." Surely self-interest should engender a spirit of self help! During the last few years we have been restoring many farm homesteads, but we have also seen with pleasure the tenants driving home cartloads of deal scantling from timber auction sales for contrivances of their own. Every wall, every blank side of a building, may be turned to account for building lean-to sheds against, only take care to have stout supports and the roof well tied together, and sides and ends may be made snug enough with Gorse, Heather, Sedges, rushes, faggots, or straw, and depend upon it the money thus expended upon shelter will be more than recouped by the speedy growth, lusty condition, and general well doing of the animals.

WORK ON THE HOME FARM.

Bright warm weather in May such as we have had lately is a strong inducement to early sheep shearing, but the advice of the old saw "Till May be out n'er cast a clout," is as valuable for sheep as for human beings, and it is wrong to shear till we reach the safe haven of summer weather in June, for the cold nights of May try newly shorn sheep sorely. As we write this note in the early morning of the 23rd of May there is a strong east wind blowing, to which we should certainly not like to expose them. The only sheep we ever do clip in May are forward hoggets having the shelter of a walled yard and a commodious lodge.

With such an abundance of feed there has been very little Rye reserved for a second folding, Lucerne and Sainfoin being both available and nicely forward in growth. Rye Grass, too, is now sufficiently forward to be useful, and with the successional Tare crops and mixed seeds we have an ample supply of green food for every possible requirement during the summer. These green crops enable us to reserve the whole of the permanent pasture for hay or silage, and there is now every appearance of an abundant hay crop. More than one of our neighbours complain of the thin growth and backward condition of their pasture, and we are bound to tell them if they will persist in turning out stock so late in spring, and in using no manure, they cannot have a full crop of hay. Our substitution of mixed Tares, Oats, and Rye Grass for ensilage instead of roots on the heavy land bids fair to prove entirely successful. The labour bill for hoeing and tillages is much reduced, the green crops are flourishing, and all doubts about ensilage have long been set at rest. We are thus able to report well of summer and winter prospects, and with lambs selling at 45s. per head, and other stock at equally profitable rates, the year should prove a better one for farmers than we have had at a'l since prices fell so low for corn. We must admit that we feared a similar permanent reduction in the price of meat when frozen foreign meat was first imported, but it has not, nor will it ever drive British meat out of the market. As an example we may instance a town of some ten or twelve thousand inhabitants some twelve miles distant from London. It has one small shop for imported meat, but none of it is to be found at any of the other butchers' shops.

METEOROLOGICAL OBSERVATIONS.

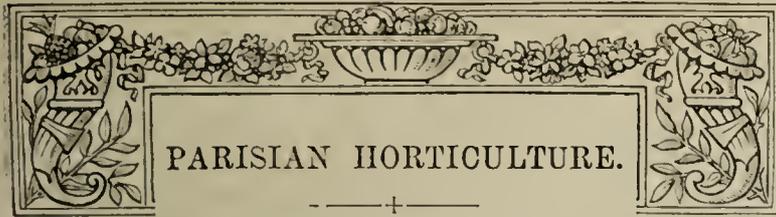
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.				Rain	
	Baromet- er at 32° and Sea Level.	Hygrom- eter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.		On grass
1890.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
May.										
Sunday	29.741	60.2	53.4	E.	54.9	65.4	49.4	113.2	38.3	0.027
Monday	29.746	62.1	56.3	N.W.	51.2	70.9	43.8	113.9	35.9	0.129
Tuesday	29.694	53.9	48.9	S.E.	55.2	60.3	49.9	91.4	45.5	—
Wednesday	30.145	54.8	51.4	S.	43.7	67.5	46.2	116.9	33.1	—
Thursday	30.327	60.0	51.6	N.E.	54.7	70.9	43.2	115.9	34.1	—
Friday	30.226	63.2	54.2	N.E.	54.9	72.9	46.1	116.1	41.9	—
Saturday	30.452	68.9	60.1	N.E.	56.9	77.4	45.4	91.2	45.3	—
	29.990	61.0	53.7			69.5	46.7	108.4	39.9	0.156

REMARKS.

18th.—Showers early, cloudy morning, a little sunshine at midday; rain from 3 to 4 P.M. then cloudy again.
 19th.—Generally cloudy in morning; shower at 6.00 P.M., then generally bright till evening. Lightning from 10 to 11 P.M., and heavy rain from 11.15 till midnight.
 20th.—Overcast and cool, with occasional slight showers in the morning; alternate sunshine and showers in afternoon.
 21st.—Bright and mild.
 22nd.—Sun shining through haze of thin cloud in the morning; bright afternoon.
 23rd.—Warm and almost cloudless.
 24th.—Brilliant day; very warm, though not so sunny as some of the earlier ones.
 It is rather curious that the temperature has risen with remarkable steadiness. Of course it is usual for the temperature to rise in the spring, but it usually does so irregularly, whereas for the past six weeks the rises have been 3°, 1.5°, 2°, 2.2°, 3.4°, and 1.5°. During this week easterly winds have been prevalent, and little rain has fallen.—
 G. J. SYMONS.



PARISIAN HORTICULTURE.

PARIS during fine weather in May is more like a vast park or garden than the cities we are accustomed to see in Britain, and it furnishes ample arboreal, floral, and architectural attractions to greatly impress a visitor from this country. It is difficult to imagine how a city could be rendered more horticulturally beautiful than the fair mistress of the Seine, and it is the more remarkable to those who are familiar with the bare and treeless cities of garden-loving England. Delightful gardens abound in Britain, in France they are comparatively rare, but in rendering cities agreeable and beautiful we must yield the palm to our continental neighbours, and sigh for possible improvements in the great metropolis that will be but slowly realised. We Britons are too apt to rest content in our insular prejudices, and are reluctant to follow where we have not been sufficiently energetic to lead, but no unbiassed horticultural visitor to Paris can fail to bring away the conviction that in some respects our Parisian fellow workers greatly surpass us. After making due allowance for climate and nationality, there is much that could be imitated here with advantage, and some useful lessons can be learned there that could be turned to good account at home.

Nothing impresses a stranger in Paris so much as the spacious "boulevards," the "places," the "avenues," and the trees. These constitute one of the chief glories of the city, and in May, when the foliage is in its freshest verdure, their beauty cannot be exaggerated. The trees are not seen in thin or scattered lines, but mostly in dense avenues, the shade of which has a considerable practical value in a continental summer. Happily, too, in the principal boulevards they are seldom clipped into the dreadful formality that often disfigures the rows of Limes in the suburbs of London, but pruning appears to be conducted upon a rational basis, judging by the well formed heads the trees possess. Another point in their favour is that two or three kinds of trees are not employed with painful monotony; and though Planes and Horse Chestnuts are perhaps the most frequent, there are many others that assist in affording an agreeable contrast both in foliage and habit.

Most conspicuous amongst these at this time of year are the Paulownias—first because they possess much beauty of foliage and flowers, and secondly because they are seldom seen in England except as isolated and most unsatisfactory specimens. In Paris they are grand, and either in avenues or as single examples they must awaken the admiration of all visitors who are in any way interested in trees. Paulownia imperialis is aptly named, for when seen in its best condition it is an imperial tree in every sense of the term. It is stately in habit, and foliage is ample and of the richest green; and then the large purplish flowers in loose terminal heads, with which the trees are loaded at this time of year, are exceedingly beautiful. One specimen near the Madeleine Church was particularly fine during my visit, but I saw numbers in the boulevards and parks equally handsome. In England the Paulownia is not a success, but some years elapsed before its adaptability for city planting was proved in Paris, and it is strange that it seems to suffer here so much, when it is often subjected to much lower temperatures in France. Probably, however, the summer temperature and dryer atmosphere there ripen and harden the wood better, thus enabling it, like many other trees and shrubs, to endure greater extremes with safety.

Catalpas also furnish a distinctive feature, and somewhat

similar remarks apply to them as to the Paulownia, for they thrive well, flower freely, and perfect their fruit more frequently than in England. Good examples of Catalpas are not, however, so rarely seen as Paulownias, but there is considerable difference in the time of leaf expansion in the two countries. For instance, the Catalpas in Paris were in full leaf the third week of May, while in the neighbourhood of London the leaf buds were only just expanding, and they are not half out now. Moderate sized trees make handsome avenues, and their peculiarly fresh green foliage is very handsome until the effect of sun and wind become visible.

The "Tree of Heaven," as we popularly designate the *Ailantus glandulosa*, but to which the French give the less poetical title of "Vernis du Japon," is another of the more noteworthy Parisian trees, and at first glance is readily mistaken for a common Ash. It is of graceful habit when of moderate size, but is apt to become rather straggling and level in larger specimens. In the Jardin des Plantes and the Rue St. Honoré the *Ailantus* is well represented, its long pinnate foliage having an elegant appearance in contrast with the denser Horse Chestnuts, but as a shade-affording tree it does not appear to be so useful as the others. Robinias are also extensively planted and flower in the greatest profusion in nearly every park and garden and for miles along the railway embankments. In the Champs Elysées, from the Place de la Concorde to the Arc de Triomphe is quite a forest of Horse Chestnuts, Parias, and Limes, and this avenue, which is nearly a mile and a half long, furnishes one of the most beautiful vistas imaginable in a city, while beyond the Place de l'Etoile the drive through the Bois de Boulogne to Sèvres and St. Cloud is a revelation of delightful park scenery that in some parts could scarcely be surpassed for natural beauty.

But there are other special features of Parisian horticulture regarding which I wished to say few words in this general summary, as some of them will perhaps merit a further detailed notice. The "trees" of Paris have been referred to, but the "flowers" are equally worthy of remark, for they furnish an attraction that cannot be overlooked. An early morning visit to the Halles Centrales, to the Flower Market at the Madeleine, or a tour round the Boulevards to the principal florists reveals some important and interesting facts, astonishing even to those familiar with the great flower trade of London. The cut flower business in Paris at certain periods of the year must be enormous, and the supplies during May afford an idea of the quantities produced and employed in floral decoration in everyday life, as well as for special occasions of rejoicing or sorrow. Flowers evidently constitute an essential portion of Parisian existence, and they are used with a profusion and frequency by all classes that would be thought extravagance in this country. Still the florists themselves exercise an economy in their work that might be more commonly practised here with advantage—namely, their bouquets, wreaths, sprays, baskets, and stands are rarely crowded, the flowers employed are displayed to the best advantage, and the general effect is proportionately improved. I remarked this not only at the Exhibition but in the leading florists' shops throughout Paris, and especially at M. Nilsson's, in the Rue Anber, where during several visits I saw some extremely tasteful productions, and a handsome bouquet from this establishment was presented to Madame Carnot on the occasion of her visit to the Horticultural Show. From M. Nilsson, who has been very successful as an exhibitor in recent years, having gained the *prix d'honneur* for floral decorations, I obtained some interesting information respecting the flower trade of Paris, which I hope to give another time. It is only necessary now to say that the reports which have appeared respecting the fabulous prices realised in Paris for floral work are mostly erroneous. The prices for all ordinary work are nearly the same as here; for special occasions exceptional contracts are sometimes obtained, and there is an advantage in the trade being more steady and continuous, while flowers are obtainable wholesale either in the markets or direct from the

growers at moderate prices, somewhat below the average here, except for Orchids and other choice flowers, for early Roses, and for white flowers at the time of church festivals. For all the shops in the principal thoroughfares, however, excessively high rents and rates have to be paid, and qualified assistants require substantial salaries, yet the florists of Paris appear to flourish and prosper in no ordinary degree, and this is due to the general demand existing for flowers. Just now Roses, Pæonies, and Marguerites predominate, but there are scores of other flowers as in our own markets.

A chapter could be written about the vegetable and salad supplies of Paris, for these represent an important industry. The crisp fresh Lettuces, Radishes, and other salads obtainable in all the Parisian restaurants are unequalled, and then the Asparagus is a trade in itself. To see the Asparagus and Watercress in the Halles Centrales on a market morning at 5 A.M. is amazing, it might be supposed to be the supplies of a nation rather than of a city only. Huge baskets and crates piled up in hundreds, the passages and aisles between crowded with sellers, buyers, and porters, presents a scene that Covent Garden cannot equal even in the Pea season. The value of vegetable food is fully recognised in France, and it would be well if it was more generally esteemed here. The salad is as essential to the *déjeuner* or *dîner* of the middle and poorer classes in Paris as bread and cheese is here, and the demand has created the supply. In all directions round Paris, but especially towards Versailles, thousands of small cultivators are engaged in the production of salading, delicious Lettuces and Endive, while at Argenteuil we have the metropolis of Asparagus culture. There is plenty of poorly cultivated farm land in France, but wherever these small market gardens are seen entirely under spade culture, every inch is as well cropped and as cleanly kept as the best of our own gardens, and they are often turned to better account because such a long succession is obtained by means of low frames and "cloches."

But these notes must be concluded for the present week, and I will only add as one of the characteristics to strike an English visitor in May that the hawkers' barrows were loaded with Cherries and Strawberries, these fruits forming the items in the dessert of every café and restaurant. The Cherries are small reddish fruits, but juicy, of fairly good flavour, and are brought into market in neat boxes or baskets from the south of France. They were sold on the barrows and in the shops at 4d. to 6d. per lb. The Strawberries are the delicious little Alpine or "Quatre Saisons," and possess an aroma and flavour surpassing many of their larger and more showy relatives which are now commanding long prices in the London shops. The fruits are small, but they are firm and travel well, and as such large quantities are seen in Paris it is strange they never make their appearance on this side of the Channel.—

LEWIS CASTLE.

PEACH GROWING IN FLORIDA.

I HAVE read the remarkable letter of your correspondent, Mr. W. H. Divers, on the above subject in your issue of April 17th, pages 316, 317, with some surprise and a good deal of amusement, feeling at the same time somewhat sorry for a man who after paying even a flying visit to Florida is not better informed on the subject of Peach culture there than he appears to be. His opportunities for observation must have been limited, and I regret that before he acquired a thorough knowledge of Florida fruit growing he should return to England and append his name to such a communication as that which appears in your columns.

As I desire to make this letter as brief as possible I will at once proceed to state facts. My articles on Fruit Growing in Florida refer to the district in which I am settled, and any additional information given by me must be understood as also referring to this locality in Alachua county, latitude (about) 29° 45'. Your correspondent says he "saw Peach trees growing, or attempting to grow, in Florida, and came away with the impression that Peach growing was not likely to be successful. I pass over his remarks on white sand, bottom heat, dry roots, and proceed to facts. During the three years I have been in Florida I have in the month

of February every year planted 300 yard rows of Peach seeds out in the open (between my rows of Peach trees), giving them just such cultivation as I have given to Beans or any similar vegetable crop, and I get 90 per cent. of plants from my seeds. The young plants from seed sown in February are large enough to bud in June and July following, and make young nursery trees 6 feet high and 2 feet through, trained to what I call bush standard form with stems 4 feet high to the first branching. If allowed to bear in the rows they would bear two dozen or more Peaches, but being so closely planted the branches become interlocked, and the young trees are therefore replanted 15 feet apart in December, and cut back to a switch. The following year they make trees 7 to 8 feet high and 5 feet through the heads, and the spring following will bear sufficient to pay the cost of the trees at nursery prices and cost of cultivation. The year after they will bear a full crop. The stems of the trees will then be 8½ inches in circumference, just above the insertion of the bud, 11 feet high and 10 feet through the heads. These measurements are given from trees now growing here, not one or two trees, but hundreds. There is no "attempting to grow" about this, I think it is actually done. Seedling Peach trees (not budded) are often grown here 7 feet high and from 3 to 4 feet through in one season, February to November. Such planted in February will make a plant of the size before named if fertilised and cultivated intelligently, and will bear two dozen Peaches within sixteen months of the time the seed is planted.

If your correspondent requires further corroboration of any of my statements it can be had with pleasure. There are Peach trees in Waldo over twenty years of age and still bearing good crops of Peaches. Within a radius of three miles of Waldo there are at least 100 acres of Peaches. Col. B. F. Livingstone, a large Orange and Peach grower of Waldo, writes in *Florida Dispatch*, May 1st, 1890: "Peach culture here has had a marked success for the last ten years," and "Peach growing is a remarkable success here."

I have just been out to measure some old trees in a neighbour's grove, and following are the measurements of four of them—

	Circumference 6 ins. above ground.	Total height.	Spread of branches.
No. 1	17 inches	16 feet	18 feet.
" 2	18½ "	17 "	22 "
" 3	15¾ "	16 "	18 "
" 4	16 "	12 "	15 "

These trees are probably seven years old, and were planted in their present position six years ago, being then one year old, and have up to this year borne fine crops annually. This year an unusually late frost destroyed our crop, as well as that of almost the entire United States.

I surmise that your correspondent, Mr. Divers, has visited some of the southern counties of the State of Florida where Peach growing is not so successful as in the northern and northern central counties of the State, and my object in troubling you again is that your readers may not run away with the idea that Mr. Divers' remarks on Peach culture in Florida are applicable to the whole of this State. Seeing that Florida extends from Cumberland Sound to Cape Sable (irrespective of the Keys Islands), or from 24° 7' to 30° 45'—over 6° of latitude—I think Mr. Divers ought to have named the district he visited, and written more guardedly, instead of rushing into print to criticise a fair and truthful statement of what is actually being done in this county.

As to sandy land, there is plenty of it in Florida, and also plenty of good fruit land. I am glad to say I have some of the latter, and am improving it every year. No one ought to purchase Florida land without seeing it, and not be in a hurry even then. A little inquiry is advisable of adjacent owners. I do not write to persuade or advise anyone to come here. My article is merely news, and I have no land for sale, nor fruit trees either, as I am planting all I raise.

There is little fault to find with Florida roads, seeing that the wet weather seems to have the opposite effect in Florida to other States, for after a heavy rain I can go out into my fruit grove or in the road without getting my boots muddy, though they may get wet in the grass. The roads, sandy as they are, become packed hard by the wet, and the wheel of a waggon will not make an impression over half an inch deep in the road. This is characteristic of the soil also, and accounts for the necessity for getting the cultivator to work after every rain to bring the surface into friable condition again. Strawberries are shipped from Alachua and Bradford counties by cartloads, and many thousands of dollars are realised by the growers of Starky, Cawley, and Gainesville, and little or no irrigation is required. Strawberries in and around Waldo are grown for home use, and are not irrigated. No one can

expect to be successful in any business without brains and business capabilities, and this applies not only to fruit growing in Florida, but to business enterprises all the world over.—W., *Waldo*.

HARDY FLOWER NOTES.

WITH the last week of May the spring flowers show with no uncertain signs that their glory has departed for another year. The last of the Narcissi, the Gardenia-flowered Narcissus, Poeticus fl.-pl., is finely in flower, while the single Poeticus has scarcely left us as yet. The early Tulips are all past, but some of the bybloemens and bizarres, with Gesneriana and the wondrous Parrot varieties, ornament the garden, although somewhat marred by the hail showers we have had of late. I grow a few of the named bybloemens and bizarres for garden decoration, for which they are well adapted, and they increase so freely on my sandy soil that the extra cost of named varieties is not so much felt, as a short time will stock the garden with flowers much superior to the mixtures usually sold. *Ixiolirion tartaricum* is now in bloom, and is a fine plant among a good collection of bulbous flowers. Its purplish flowers are very pleasing.

Near by is a clump of *Camassia esculenta*, a welcome blue, which will be followed shortly by the splendid blues of the princely *Delphiniums*. The *Aubrietias* are past their best except in some half shady spots, but the *Saxifragas*, *Encrusted* and *Mossy*, are covered with flower. High on rockwork, or uprearing their heads of pendulous blooms above dwarf plants in the beds and borders, are some fine plants of *Rawson's Aquilegias*, among which are to be found some fine shades of colour and large flowers. Several plants of *Linaria anticaria* have been flowering profusely since the beginning of the month. On light soils and in sheltered situations this species will be found a great acquisition. *Onosma taurica* has begun to flower, and will continue for three or four months to produce its beautiful almond-scented yellow flowers.

This "Golden Drop" is perfectly hardy, but should be protected overhead from the excessive wet from which it seems to suffer in winter. The beautiful little *Iris cristata* is making itself quite at home on a sunny level spot on the rockery in light soil. Here it is spreading rapidly, and producing freely its beautiful light blue flowers. Close at hand, but slightly shaded, *Anemone sylvestris* displays its white drooping flower buds, which, when fully open, show a slight resemblance to those of *A. japonica alba*, of which it is said, but only by a stretch of the imagination, to be a fac-simile. In the same corner of the rock garden, but still more shaded, *Dodecatheon integrifolium*, the "Shooting Star" or Cow-slip of North America, displays to our admiring eyes its clusters of Cyclamen-like reflexed red flowers with yellow rings. It is quite happy in joint possession of its shady nook with the exquisite *Trillium grandiflorum*. In another shady spot in stronger soil some plants of *Primula japonica* are beginning to show their fine blooms on whorled heads, and their noble foliage is the very picture of health this year. The once brilliant golden *Alyssum saxatile* is beginning to look somewhat disconsolate, but a good plant of *Cheiranthus alpinus* perched high on a rockery seems to think that its season has come, and that it may now claim for its clear yellow blooms the admiration the "old gold" of the *Alyssum* once undisputedly received. *Iberis correæfolia*, the whitest of the perennial Candytufts, is now a mass of snowy white. The varieties of the Spanish Squill (*Scilla campanulata*) are in full flower, accompanied by *S. patula*, and a fine plant of *Lupinus polyphyllus tricolor*, in my opinion the finest of the varieties of the species; in fact, coming into full flower. The only Poppies yet in bloom are *Meconopsis cambricus*, the Welsh yellow Poppy, and autumn-sown plants of *Papaver umbrosum*. I was much struck with the beauty of the former a few days ago on seeing a very large mass in a cottage garden. My own plants are small, but the effect of the mass of delicate foliage and light yellow drooping flowers was surprisingly fine. *P. umbrosum* appears to have become naturalised in my garden, as no seed has been purchased for about four years. Autumn-sown plants of this beautiful Poppy are certainly superior to those from seed sown in spring.

One of the finest of front-row plants in a good border of rich soil is *Ranunculus rutæfolius*, which has large white flowers with bright orange centre. The old-fashioned *Ornithogalum umbellatum* is in full flower, and another scarce little member of the same genus, *O. montanum*, only 2 inches high, is in full flower. Of the former there exists in the minds of some of my neighbours a belief that it flowers as a *Crocus* early in the season and afterwards flowers as the *Star of Bethlehem*. In vain do I assert that the bulbs must have been mixed. They are of the "same opinion still," and one should believe that the *Magi* had conferred some

wonderfully bi-generic nature on the *Ornithogalum-Crocus*. But I must draw to a close, leaving much unnoticed, lest this "olla podrida" should need curtailment, or even, sadder fate! be consigned to the editorial basket, which in ordinary conversation has two ominous words prefixed.—S. ARNOTT.

DESTROYING MILDEW IN FRANCE.

I HAVE for many years paid periodical visits to the claret producing districts of France, and a few years ago noticed with great regret the fearful devastation among the Vines caused by mildew; but the destruction caused by this pest is now arrested by a simple remedy, which is generally adopted by the Vine growers in this country, and as it is proved to be equally efficacious in other crops, I send it for publication in your Journal, and if applied in the early stages of growth, crops of Potatoes, Tomatoes, Roses, &c., &c., will be entirely freed from the troublesome fungus.

The mode of application here is as follows:—A large tin can containing 2 to 3 gallons is carried on the back, straps passing under the arms keep it in position. From this can a tube of sufficient length to come easily to the front of the body is provided with a syringe, which enables the operator to apply the liquid in any direction required. By the aid of this simple machine hundreds of plants may be treated by one man each day. The mixture consists of 1½ lb. quicklime, 3 lbs. sulphate of copper, and 20 gallons cold water.

Dissolve the sulphate of copper in cold water for two hours in one vessel. In another pour a little water by degrees on the lime, mixing it well till it becomes a milky liquid; then pour the latter into the former, stir them well, and add to the 20 gallons of water already provided. It should be applied at intervals of three weeks, and always used fresh.—W. SMITH, *Bordeaux*.



ODONTOGLOSSUM VEXILLARIUM FOR TABLE DECORATION.

The popularity of *Odontoglossum* or *Miltonia vexillarium* is rapidly extending, and the difficulties of its culture are being overcome by many who at one time found it a most unsatisfactory Orchid. Really healthy collections are more frequently seen than formerly, and one of the chief secrets of success—keeping the plants clean and free from insects—is now familiar to all engaged in Orchid culture. The variations, too, are so numerous, from pure white to the deepest rose, with all intermediate gradations. The flowers are large, showy and distinct in form; they are produced freely and they last well on the plants. It has been complained that the flowers are not sufficiently durable when cut for decorative purposes, but this does not apply when young fresh flowers are chosen and they are at once placed in water.

An admirable example of what can be accomplished with *O. vexillarium* flowers for table decoration was afforded on the occasion of the Queen's recent visit to Baron Rothschild's residence at Waddesdon, when the luncheon table was almost exclusively adorned with these flowers. Mr. Jacques succeeded in making a most tasteful effect with long spikes of *O. vexillarium* in stands and glasses, from which rose a few spikes of *O. crispum*, with a groundwork of *Adiantum* fronds. The soft tints of the flowers were most pleasing as a daylight effect, and I remember once before seeing a table similarly decorated for some distinguished guests who were charmed with the result. At Waddesdon the floral decorations were well managed by Mr. Jacques throughout, and the bouquet of *Vanda teres* and *O. Pescatorei* presented to the Queen by Baron Rothschild was also a portion of Mr. Jacques' work.—L.

ORCHIDS AT MERTON PARK.

IT often happens that the gardens of enthusiastic amateurs afford some of the best examples of success in the culture of certain plants, and this applies with special force to Orchids, nearly every species of which repays for a careful study both as regards their structural peculiarities and their cultural requirements. An admirable instance of what can be effected by close observation and attention to plants is seen in the collection of Orchids formed by W. H. Cannon, Esq., at Avenue Lodge, Mostyn Road, Merton Park, where at the present time a house full of *Odontoglossum*

vexillarium in many varieties constitute a charming floral display. This beautiful Orchid is a source of trouble to many amateurs who admire it, and have undertaken its culture in the vain hope of producing something like what they have seen in the leading nurseries. Healthy plants are purchased, and for a season perhaps they give a return of their delicately beautiful flowers; then it is found the plants are infested with thrips or other insects, the foliage assumes a yellow sickly hue, and they dwindle into miserable objects, the destination of which is the rubbish heap or the stokehole fire. One of the chief secrets in the culture of these charming Orchids is to keep them free from insect pests, and in some large establishments frequent dipping or fumigating is resorted to to accomplish this. Mr. Cannon, however, finds he can dispense with such artificial aids, and the clean, vigorous, healthy condition of the plants, the abundance and size of the flowers, indicate that he has succeeded in no ordinary degree. About 800 moderate sized plants are arranged upon low stages near the glass at the sides of the house, over cement shelves covered with water. From some single pseudo-bulbs as many as three spikes are produced, with five to nine flowers each, one such plant having seventeen fine flowers expanded or expanding. Nearly every plant is flowering, so it can be imagined that two handsome banks are formed which will continue attractive for some weeks. The variations also are very numerous, both in size, form, and colour, ranging from white to the deepest rose, with much diversity in the markings of the lip. There is also considerable difference in the proportion of sepals, petals, and lip; in some the last-named is of great size and the other divisions small, while the reverse is the case in other instances. It is, in fact, most interesting to note the variations in a collection like this, formed of imported plants scarcely two alike, and probably, therefore, all wild seedlings.

But the growth of the plants is surprising, and no doubt this is the result of the keen attention paid to their several requirements and a common sense mode of procedure throughout. In the first place air is admitted most freely whenever the weather permits, and at this time of year the ventilators are open night and day, as Mr. Cannon does not believe in the close but unwholesome atmosphere that some seem to consider necessary. The winter temperature is kept as near 60° as possible with 55° as the extreme minimum, no resting period is allowed, and a frequent gentle dewing of the foliage by the syringe is preferable to an occasional drenching. Then the best peat and sphagnum are employed as compost, and the surface layer is kept in healthy growing condition as an important guide as to the requirements of the Orchids. Lastly, but really of first importance, conventional cement and tile paths and floors are avoided, earth or cinders form a perpetual moisture-holding medium under the stages; all the cinders form a good path of a similar character. This point has often been insisted upon, and no small degree of success in large and noted collections is due to the avoidance of an arid atmosphere by similar means.

Odontoglossum vexillarium is not, however, the only Orchid well grown at Avenue Lodge; a house is devoted to other members of that genus, comprising *O. crispum*, *O. Pescatorei*, *O. Edwardi*, *O. maculatum*, and others in many varieties, all capital healthy plants. *Masdevallias*, too, are making fine growth. A long house is full of select *Cypripediums*. There are some fine plants of *Lælia purpurata* which have been very successfully grown there, but owing to a slight change of treatment—namely, their elevation on a stage in the centre of a house, they deteriorated somewhat. They are now restored to their former position over water, and they are rapidly recovering.

The establishment is full of interest and well kept, containing a neat lawn, a good collection of Roses, an herbaceous garden with a collection of Irises, Lilies, Pyrethrums, and scores of other plants, proving that Mr. Cannon possesses broad horticultural sympathies, and derives considerable pleasure from his model garden.—
L. CASTLE.

GARDEN NOTES IN 1889.

ALPINE AND HERBACEOUS PLANTS.

To a lover of a garden there is enjoyment to be had—enjoyment at all times. If he have a greenhouse, however small, he can find something, if he be a good manager, to cheer him in the duller months of the year. As anyone can guess who has ever taken the trouble to read what I have written in the pages of the Journal, I am pretty well omnivorous as far as flowers are concerned, and I get enjoyment from them from the early to the last months of the year. I have my special pets—Auriculas, Roses, and Gladioli, and these all suffice for a time; but for enduring and constant gratification from early spring on to late autumn there is nothing that can equal those plants which I have classed under the above heads, including amongst them flowering bulbs and tubers. They do not, of course, belong to any one tribe, but to all, and their blooming is, therefore, not only varied but successional. A visitor comes to look at your Auriculas or Carnations or Picotees, and

he says, "Dear me! how very much alike they are! How can you distinguish them?" But he makes no such observation on your alpine garden or your herbaceous border; hence they are flowers for all sorts and conditions of men, and one of the greatest pleasures connected with them is that you can be always distributing them. Auricula growers know how difficult it is to get up a stock of anything good as to be able to give to one's friends; but herbaceous plants, at least most of them, increase rapidly, and there is no difficulty in giving away to one's friends.

The term is comprehensive, and is now made to include bulbs, tubers and roots of various kinds, perennials and biennials, and therefore it gives one a wide range of subjects, and affords a continuous object of interest for many months of the year, from the time the Cyclamens begin to bloom in the midst of snow and dreary winter weather, until frost cuts down the Chrysanthemums which we have placed out of doors. Some have indeed a very doubtful claim to hardiness, but are yet numbered amongst them. I shall, however, in noting those which have done well with me the past year, refer only to those which are undoubtedly hardy in East Kent, assuring the readers of the Journal of a fact people are slow to believe, that this part of our county is very cold, being fully exposed to east and north-east winds, which swoop down upon us direct from the German Ocean.

The very earliest flowers that I have had this year were those of *Cyclamen vernum* and *Atkinsi*. I sometimes read complaints about this sturdy and vigorous little plant. I had tried in various parts of my garden, but with scant success, but seeing that it liked a warm place in the summer, and in places where the roots of trees passed through the soil, I planted some a few years ago in the borders of the shrubbery on my drive, about the hottest spot I have. Here it has done immensely well, has seeded all over the border, and in very early spring it makes quite a gay appearance, coming on long before even the Snowdrop, of which I have both the common sort and *Elwesi*, which is certainly finer and earlier. The other varieties of *Galanthus plicatus*, *Imperati*, &c., I do not grow, my object being rather to grow a selection of things than a collection, for which I have not room. The same rule causes me to confine my *Narcissi* to some forty or fifty sorts, which I grow in a long border facing east, and where they have done very well. I have some in other parts of the garden, but these form the principal portion. Unquestionably one of the choicest things I have, not for its rarity, but its extreme beauty, is

CHIONODOXA LUCILÆ.—It ought in gratitude to me to do well, for it was through my means that it was first largely introduced into England, and a great portion of the large quantities now grown were from roots which I obtained from Smyrna, some 60,000 for Messrs. Veitch, Ball, Backhouse, Smith, Dicksons and others; and can anything be well more lovely? I am not insensible to the beauty of *Scilla siberica* or *Scilla bifolia*, but the cerulean blue of *Chionodoxa* surpasses them all in its soft loveliness of colour. I have a border running in front of my greenhouse which is about 30 feet in length. The whole front of this, about a foot in width, is now one mass of *Chionodoxa*, and when in full bloom it is a "joy for ever." When my friend, Mr. Ewbank, came to see me I had a sort of dread of showing my poor little garden to one who grows to such perfection everything herbaceous or alpine. Happily he came to see me when the border of *Chionodoxa* was in flower, and it received his unqualified admiration. The border is edged with flint stones, and I last year planted close to the stones some bulbs of *Anemone stellata*. These continued in flower from the end of January to the end of April, and formed a pleasing contrast to the blue of *Chionodoxa*, although, perhaps, it was a little too strong. One of the grandest of spring flowering plants is

DORONICUM HARPUR CREWE, for I prefer to associate this grand plant with that genial and much lamented amateur, and the name is more easily remembered than its correct one, *plantagineum excelsum*. In every way it is about twice the size of the very pretty and useful *D. austriacum*, and succeeds it in time of flowering. My plant of it has been in flower fully two months, and I have no doubt I shall again get blooms of it when I cut off the stems, as it is one of those herbaceous plants which often reward us as some of our Roses do, by giving us a second bloom. I have at last, I hope, got a place which suits

HEPATICAS.—I remember as a boy seeing these growing in all sorts of places and under the most varied conditions of soil, &c., but it is nevertheless true that many persons (I amongst them) failed. I tried them in various places, and except with *angulosa* was very unsuccessful; but I have them now in a border facing north, and shaded, and there they seem to be quite at home. They are very pretty, but I do not see my way to going into some raptures over them as some do, and even to flower at any other season of the year, I do not think people would rave about them. In the same border I have at last found a place suitable for

CHRISTMAS ROSES.—These also have been a failure before, but here they are growing away splendidly. One clump is quite 3 feet across, and I must prepare to place a frame over it for the autumn in order to preserve the purity of the flowers. I last year placed here also some of the spotted varieties as well as *altifolius*. The former I do not think can ever be compared in beauty with the niger varieties. I have found it to be a good plan to once or twice during the growing time to give them a good soaking of liquid manure. This increases their vigour and of course tends to their greater freedom of flowering; and, coming on as they do at the end of the year, they are worthy of all the care we can bestow upon them.

PRIMULAS are great favourite with me, both the species and the

hybrid varieties. Of the former I have been greatly delighted with *P. Cashmeriana* raised from seed which was very vigorous at the back part of my rockery; *nivalis*, pure white, but small; *pubescens* and some of its varieties; *Croussi*, double; and especially a sort which we have by the name of *lilaëna*, which was given me by Mr. Hammond of St. Alban's Court, near Wingham, and which is without doubt the finest flowering *Primula* I know. The plant is one mass of bloom, and it is impossible to see a single green leaf. It is also very vigorous, and I have given it away in all directions. Then with regard to the hybrids, which contain *Polyanthus*, *Primroses*, *Cowslips*, &c. I procured a packet of seed from Mr. Merryweather of Southwell, and I have had a most charming variety of form and colour from them; some dark crimson some light yellow, and all sorts of shades between. They have been planted in a long border, to which they form a sort of edging, and were a very charming sight. Then, again,

ANEMONES.—I mean the species, not the garden varieties—are great favourites, and have done well. Besides *stellata* already mentioned, I have a very dark (I believe the Greek) form of it called *atro-sanguinea*. It seems to be dwarfier, is deeper in colour, and later in flowering than the ordinary *stellata* or *fulgens*, and is therefore valuable. Then what loves are *A. blanda* and *appenina*, approaching one another very closely in colour, but *blanda* being one of the first plants to flower. *Appenina* has spread all over one part of my rockery, and is most exquisite. It carpets that portion in early spring, and does not prevent other things from growing up. Then there is the pretty *A. ranunculoides*, very dwarf and bright, although some would say it was only a small *Buttereup*. *A. sylvestris* is a plant to beware of; it insinuates itself everywhere, and although I have banished it to the back part of my rockery, which forms a sort of wild garden for Forget-me-nots, *Rose*, &c., I have to keep a sharp look-out upon it that it does not force itself into places where it is not wanted. *A. palmata*, both in its yellow and white form, is especially lovely, and is somewhat later than most of the tribe. The broad glistening white petals of *alba* make it a very conspicuous object in the rockery. Nor can one omit, although differing so much in its habit of growth, the lovely and most useful *A. japonica alba* or *Horoline Jobert*. I do not care for the coloured ones, but I have had plots of the white one some couple of yards by one, and they form in autumn a most delightful object. Some persons say they cannot grow it, but with me it is like a weed, and requires to be kept in bounds.—*D., Deal.*

(To be continued.)

THE TEMPLE SHOW.

IN our last issue we were only able to give a general description of the Royal Horticultural Society's Show in the Temple Gardens, and the announcement of the awards for groups and novelties had to be deferred. The following further particulars will therefore be acceptable to those specially interested in this remarkable exhibition. The weather continued fine on the second day, and there was a large attendance of visitors, the tents being crowded the whole day. The plants suffered but little, and the majority looked as fresh on Thursday as they did on the opening day, but some of the cut flowers showed the effects of standing all night in a draughty tent. Several of the exhibitors of these, however, brought fresh supplies, and this helped considerably in brightening the display. The Orchids, of course, were the great attraction, especially Baron Schröder's and Sir Trevor Lawrence's superb collections, but Messrs. Sander & Co. have never had a more tasteful group at a London exhibition. Messrs. B. S. Williams & Son, Mr. Cypher, and Messrs. Low & Co. also showed extremely well. Beyond these, perhaps, nothing attracted more attention than the *Roses* from Waltham Cross and Cheshunt. Then Messrs. Laing and Sons' charming group of *Tuberous Begonias* was the subject of general comment, for both in quality and arrangement it was one of their best efforts. The *Ferns* from Messrs. Birkenhead, Baekhouse, and May, the *Gloxinias* from Messrs. Sutton & Sons and Veitch & Sons were special features, as also were the cut hardy flowers from Messrs. Kelway and Son and Mr. T. S. Ware.

The awards made by the Judges and Committee were as follows:—

Silver Cups.—For groups of Orchids from Baron Schröder, Sir Trevor Lawrence, Bart., M.P., Messrs. F. Sander & Co., Messrs. B. S. Williams & Son, H. M. Pollett, Esq., and Mr. J. Cypher; to Messrs. W. Paul & Son and Paul & Son for *Roses*; to Messrs. Baekhouse & Son and W. & J. Birkenhead for *Ferns*; to Mr. H. B. May for *Ferns* and foliage plants; to Messrs. J. Laing & Sons for *Tuberous Begonias*, and a group of miscellaneous plants (two cups); and to Messrs. Perkins and Son for bouquets.

Silver-gilt Flora Medals.—Numbers of these were awarded as follows:—To Messrs. J. Peed & Sons for *Anthuriums*, James & Son for *Calceolarias*, C. Turner for *Pelargoniums*, Sutton & Sons and J. Veitch and Sons for *Gloxinias*, W. Leeton for *Palms*, Cutbush & Son for a group of miscellaneous plants, J. Wiltshire for *Caladiums*, Cannell & Sons for *Tuberous Begonias*, T. S. Ware and Barr & Son, and Paul & Son for herbaceous plants and flowers, R. Smith & Co. for *Clematis*, H. Low and Co. and T. B. Haywood, Esq., for *Orchids*, and Mr. G. Monro for fruit and vegetables.

Silver Flora Medals.—These were adjudged to Messrs. H. Lane and Son for *Rhododendrons*, Cannell & Sons for *Calceolarias*, the Duke of Northumberland for *Orchids*, and Messrs. J. Veitch & Sons for a collection of Apples.

Silver Banksian Medals.—The Committee also accorded the above

to Mr. W. Rumsey for *Roses*, Messrs. Paul & Son for alpine and herbaceous plants, Messrs. Balchin & Son for *Leschenaultias*, Messrs. J. Veitch and Sons for herbaceous plants, Messrs. Dobbie & Co. for *Pansies*, Messrs. Bunyard & Co. for *Apples*, and Mr. G. Phippin for bouquets. Similar awards were granted to Messrs. Campbell for *Grapes*, J. R. Featherley for *Grapes* and *Tomatoes*, Mansell for *Grapes*, and F. Wigan for *Orchids*.

NOVELTIES.

The new plants exhibited were very numerous, the Floral and Orchid Committees having a rather busy morning. First-class certificates and awards of merit were granted for the following after a careful examination.

Odontoglossum vexillarium Fairy Queen (F. Sander & Co.).—A delicate and beautiful variety, the flowers of good size and shape, pure white, except a yellow blotch in the centre of the lip at the base.

Cattleya Mendeli Prince of Wales (F. Sander & Co.).—A most handsome variety, remarkable for the superb form of the flowers and the rich colour of the lip. The sepals and petals are broad, tinted with rose; the lip is broad, with a dash of yellow in the throat, white side lobes, and the fore part of the lip an intensely deep crimson magenta, clearly defined, and straight across.

Odontoglossum Bleuï, var. splendens (F. Sander & Co.).—An interesting hybrid between *O. vexillarium* and *O. Roezli*, raised in Paris



FIG. 67.—ODONTOGLOSSUM BLEUÏ SPLENDENS.

by M. Bleu, and from the same parentage as *O. Bleuï*, which has been described as a *Miltoniopsis*, but a better variety than that which first flowered. The flowers are white, the petals flushed with rose at the base, the lip having a series of dark crimson veins radiating from the centre. The woodcut (fig. 67), from a sketch taken in the Show, indicates the distinctive characters fairly well. A description was given last week.

Oneidium roraimense (F. Sander & Co.).—A graceful Orchid, with plentiful panicles of bright yellow flowers, the lip broad, the sepals and petals faintly spotted with brown.

Anthurium album maximum (F. Sander & Co.).—The best white *Anthurium* yet obtained, with broad well formed spathes, of strong habit, free, and likely to be very useful for decorative purposes with the scarlet and spotted varieties of *Anthurium Schertzerianum*.

Dendrobium Falconeri delicatum (J. Cypher).—A distinct variety, the flower white tipped with pale rose, the lip rose and yellow.

Dendrobium Bensoniæ album (J. Cypher).—Flowers white, the lip orange buff in the centre.

Laelia purpurata Empress (J. Cypher).—Very handsome; the sepals and petals pure white, the lip with a light centre and deep crimson blotches on each side.

Cattleya Lawrenceana delicata (Baron Schröder).—Most distinct and beautiful, the colour being a soft pale rose throughout the flower.

Sarcopodium Deari (Baron Schröder).—A peculiar Orchid with small conical pseudo-bulbs and yellowish flowers dotted with red at the sides of the petals.

Rose Crimson Globe Moss (W. Paul & Son).—A fine acquisition

amongst Moss Roses, the flowers large and of good substance, bright crimson, habit vigorous and free.

Saxifraga McNabiana (J. Laing & Son).—Free flowering and graceful, the flowers small in tall panicles, white dotted with red.

Canna Madame Crozy (Paul & Son).—A grand variety with large flowers, the petals broad and rounded, of a most brilliant scarlet colour.

Lastrea Filix-mas fimbriata cristata (W. & J. Birkenhead).—An elegant Fern of dwarf habit, the pinnæ and apex of the straight dark green fronds deeply divided and serrated.

Gloxinia Her Majesty (Sutton & Sons).—Flowers of capital shape and substance, pure white, very beautiful.

Gloxinia Princess of Wales (Sutton & Sons).—Flowers large, white in the throat, with bright pink rounded lobes.

Gloxinia Empress of India (Sutton & Sons).—Flowers of great substance and excellent form, the colour a peculiarly rich crimson purple.

Gloxinia New Netted Strain (Sutton & Sons).—A strain derived from crosses between the different sections, with the colour broken up into a mottling in the lobes and in the throat, the shade ranging from crimson to purple, pink, and rose.

Gloxinia Mrs. J. Donaldson (J. Veitch & Sons).—A particularly handsome and bright variety of considerable decorative value. The flowers of excellent shape and a rich glowing scarlet. The habit is compact, yet strong and free.

Tuberous Begonia Henshaw Russell (J. Laing & Sons).—A magnificent double scarlet variety with massive flowers of great substance.

Tuberous Begonia Negro Boy (J. Laing & Sons).—A double variety, the flowers of fine shape and substance, all dark scarlet.

Tuberous Begonia Enehantress (J. Laing & Sons).—A single variety; the flowers large and rounded, white in the centre, and rich rosy crimson to the margin.

Tuberous Begonia The Rev. W. Wilks (H. Cannell & Sons).—A handsome double variety, the flowers of excellent form and substance, the colour a soft clear rose.

Paeonia conchiflora (Paul & Son).—Flowers neat, of moderate size, single, cupped, and coral red.

Pyrethrum Carl Vogel (Kelway & Son).—A double variety with pure white flowers.

Aster alpinus speciosus (T. S. Ware and P. Barr & Son).—A dwarf Aster, 8 to 9 inches high, the leaves lanceolate, and flower heads 2½ inches across, with narrow bright purple rays and a yellow disk.

COMMON SENSE AND COMMON NONSENSE IN THE NAMING OF PLANTS.

[By Mr. Shirley Hibberd. Read at a meeting of the Horticultural Club.]

THE subject of botanical nomenclature is one that may reasonably engage the attention of this Club for an hour, the more especially if we confine the consideration to a few points illustrative of our common use of plant names. In order to economise time I will beg you to excuse the absence from this paper of any introductory remarks on the importance and interest of the various questions of a purely academic kind that might be brought under your notice; and these being put aside we can proceed at once to serious business.

If you compare what I will term the pre-Linnean names with those that Linnæus established, you will perceive at a glance how fully possessed of common sense was the great botanical reformer. The ancient names I say nothing about now. Those in use in books in the time immediately preceding Linnæus are to be regarded as descriptions in brief, the names in the vernacular being held sufficient as such. In "Turner's Herbal," 1568, simple names occur, as for example Coniza Magna and Hyacinthus Maximus, but he trusts to names in the vernacular chiefly, and again in "Ray's Plantarum," 1685, the names are in reality brief descriptions, as, for example, Hyacinthus orientalis vulgaris diversorum colorum, the ordinary Oriental Jacinth. Linnæus in his "Genera Plantarum," 1737, and "Species Plantarum," 1753, established the binomial system, having prepared the way for it by a general review of the vegetable kingdom, in which, by the aid of his artificial system, he made a near approach to a true association of affinities and prepared the way for the natural system which is now in general favour, and has nearly, but not quite, superseded the Linnean classification. We must keep in mind the principles asserted by this master as of vital importance, and we may do so to advantage without converting Linnæus into any impediment to scientific progress. Those of his canons that directly concern us now are that the same generic name shall be applied to all plants of the same genus; that each generic name must be single; that generic names compounded of two entire words or portions of two entire words are improper; that generic names derived from the Greek or Latin languages are alone admissible; that names are not to be adopted for the purpose of gaining the goodwill of saints or celebrated persons; and that long, awkward, and unpronounceable names are to be avoided as altogether objectionable. There are many more such, and there is a capital summary of them in Mr. Randal Alcock's work on Botanical Names, to which I will refer those who desire a clear and sufficiently full statement of the whole case. Mr. Alcock quotes from Plukenet Coriotragermatodendros as an example of a "long, awkward, disagreeable name," and some of you perhaps will give way to the cruel thought that a man who so seriously published

such a name for the service of the world deserved to be seriously tarred and feathered.

A good name of a plant may serve two purposes. It may guide one to a plant not seen or known before. I submit as an example that *Ilex cornuta* does this, when we have learned to recognise the Holly as an *Ilex*, for the specific name admirably suggests the form of the leaf. But the plant being known, but always liable to slip out of the memory, a good name recalls it in the absence of a specimen, and assists to identify the specimen when found. A fanciful name is of no use for either of these purposes; it is simply a mnemonic sign, and a tax on the memory. A German botanist is reported to have said that it is not in the power of a man to attain to a knowledge by name, and, in fact, of more than 10,000 plants. Many intelligent and observant men of fairly good memory would be glad if they could master the identification correctly by name of ten hundred plants, but whoever will explore this field of labour will assuredly discover that good names are better than bad names, and that names alone, as such, have a literary and scientific value proportionate to their correspondence with the requirements of common sense. A man who coins a name contributes to the language of the world, and the world has some right to a voice in the matter.

And you will ask me what I mean by common sense in this connection. In a general way I will answer compliance with the Linnean method, but I must in the interest of common sense propose to you that we may with advantage build upon the Linnean foundation, so as to carry the edifice a few storeys higher. And our building must be after a design that needs no explaining with materials of the simplest character.

For example, Linnæus admitted commemorative names, and they might even now be allowed were common sense in the ascendant; but it is not, and commemorative names have of late years been employed with such a lack of discrimination that the abuse suggests a necessity for their total abolition. There will be other ways of commemorating worthy persons in the field and the garden, as I will explain presently. Mr. Alcock says in defence of personal names:—"It might be said that the names of people applied to plants give no information, but this is not exactly the case. 'Sherardia' could not have received its name before the time of the Sherards nor Linnæa before the time of Linnæus; so that these names at least give us a scrap of information in botanical history." A scrap it is, for which we pay an exorbitant price, the commemorative system of nomenclature having been assiduously developed into an intolerable nuisance. The late Dr. Lindley usually exhibited strong common sense in his endeavours to interpret the facts of Nature, and the method of his "Vegetable Kingdom" proves his desire to help the student through the medium of names. It is therefore lamentable to find him saying "it is of little real importance what name an object bears, providing it serves to distinguish that object from everything else," and he adds, "I agree with those who think a well-sounding unmeaning name as good as any that can be contrived." This is a sort of encouragement to the adoption of such names as *Aldiborontiphoski-phornio*, which is sufficiently unmeaning and has a pleasant sound, and might be substituted for *Lindleya*, a genus of Rosaceous plants, the generic name of which is not a matter of the first importance. My respect for Lindley's work and name will not prevent me saying that to propound so lax a rule is equivalent to the abolition of all rule; it is admittedly a putting of sound before sense, and so it may be feared that to Lindley's hearing the blast of a trumpet or the roll of a drum was as sweet and good as any angelic song or demonstration of philosophy.

In a paper written by me for the Botanical Congress of 1866, the text of which will be found in the *Gardeners' Magazine* for June 9th of the same year, the following remarks on this subject occur:—"The great sin of modern botanists is the wholesome adoption of commemorative names. They have, indeed, in this practice some small excuse in the commemorative principle on which many of the best known names are founded. *Andromeda* is, indeed, an example. But there is one still more noteworthy; it is that of the genus *Linnæa*, which Linnæus named in commemoration of himself, and perhaps to remind future ages of his own early lot, describing it as a 'little northern plant, flowering early, depressed, abject, and long overlooked.' But the extent to which the commemorative principle has been carried is ridiculous. Botanists need not now examine the new plants they find or have submitted to them; they have only to remember the name of a friend if a plant is beautiful and sweet-scented, or of an enemy if it is ugly and emits a fœtid odour. A plant comes to hand, the characters of which separate it from all known genera. The trouble of inventing a name by means of an exploration of Greek roots is saved, because the botanist has a friend named Smith to whom it would be agreeable to pay a compliment. So Smith furnishes the generic name. For the specific name there stands Brown, and the thing is done. By-and-by a variety of the species is met with, and again the process is repeated, and the variety is named after Jones. It is perhaps a fortunate thing for mankind that Adam had no ancestors and no brethren, for he might have named the lions and tigers and antelopes after such people as Methuselah and Enoch, and Abimelech, for those names would no doubt have been common has there been a pre-existing population at the time when our great progenitor named the creatures. The good ancients of the truly classic period flung their heroes up among the stars, and the process was called an Apotheosis. We dash them down into beds of Nettles, and bury them amongst the herbage before their time, that they may live with posterity in the names of plants, though perhaps they never lived for fame, and have no desire to do anything for posterity at all, not even to mock its understanding, or needlessly burden its memory. Among

the reputed British species of *Salix*, there are no fewer than twenty-two named after persons or places, and not one of the names is so good as that devised by a humble botanist who, finding a plant he had never seen before, and having no means of ascertaining its name, called it, because found by the roadside, *Rhodum Sidum*, as good a name perhaps as *Georgium Sidus*, and one that might be adopted and pass current without raising a laugh. In Curtiss's "Botanical Magazine" for the year 1865 there are figures and descriptions of sixty-six plants, of which no less than twenty-eight derive their specific names from places or persons; or, to be more particular, nine are named from the countries or districts in which they grow, and nineteen from persons. With all respect to the botanists, I must say that these nineteen names at least are frivolous. Geographical names are, as a rule, not good. Very many of the plants found in Japan, and named (with how little effort!) *Japonica*, are also found in China; and species that inhabit both the old and new world cannot with any propriety at all have geographical names assigned them. If books of authority like the "Botanical Magazine" are thus open to animadversion, what shall we say of trade catalogues? What shall we say. I quit the unwelcome theme, and leave the trader in plants at his own free will to commemorate his relations, friends, and customers *ex officio*, for the simple reason that we are not bound to trade names, but we are bound to the names in the "Botanical Magazine," and to all that come to us with the stamp of authority. In the "Botanical Magazine" during the year 1888 there were published sixty-one plants, of which thirty-one have specific names commemorative of persons, three are records of geographical location, and twenty-one are founded on visible characters, and may be regarded as descriptive. The secret cannot be concealed that the bestowal of a personal or geographical name saves time, and demands absolutely no talent; but for the bestowal of a good descriptive name a diagnosis is required, and it must be performed by a botanist familiar with the genus, and in a state of mind favourable to clear perception and discriminative comparison. But to name a plant in honour of somebody's niece, aunt, ninth cousin, or grandmother is an easy task, and might almost be done by machinery.

A generic name should cover all generic characters, and a specific name should clearly separate a plant from all other species in the genus. The thick or broad gauge men are lumpers, and see fewer species worth naming than the thin or narrow gauge men who are splitters, and usually see more species than common sense can acknowledge. The broad gaugers have increased at a rapid rate since Darwin gave a new interest to the generalising faculty, and put into the minds of men that all organic forms are transient and mutable.

When new names are required, the structure and affinities should determine the boundaries of a genus; and some distinctive characters of form or habit should determine the species. To name plants from their colours is bad practice. We have *Digitalis purpurea alba*, the white purple Foxglove, which is not more rational than to say the white black cat. Nor is it consistent with the aims of science to adopt names that reflect injuriously or unpleasantly upon persons. Linnæus has himself condemned commemorative names, not by words but by deeds; for he managed to convey a sneer, or even an affront, by his freaks of terminology. Sir J. E. Smith, who was a purist in this matter, refers to the Linnæan name *Buffonia tenuifolia* as "a satire on the slender botanical pretensions of the great French zoologist, as the *Hillia parasitica* of Jacquin, though perhaps not meant, is an equally just one on our pompous Sir John Hill." But he does not approve of such satires; he says "they stain the purity of our lovely science; if a botanist does not deserve commemoration, let him sink peacefully into oblivion. It savours of malignity to make his crown a crown of thorns, and if the application be unjust it is truly diabolical." Mr. Alcock has put the case reasonably, thus—"Those names that point out a decided specific character are the best, as *Arenaria trinervis*, *Chlora perfoliata*, *Epipactis ensifolia*, and the like."

The greatest sinners against propriety in naming plants are the orchidists, for they ignore all settled rules, they repudiate the requirements of common sense, they make a law for themselves which they do not define, and which whenever they do define it, will convict them of frequent and flagrant violation. We must wait for the report of the Committee that has taken the subject in hand, and has been toiling almost time out of mind, and meanwhile pray that they will not vex the shade of Linnæus to the extent of compelling him to get out of his grave to terrify the evildoers, but if they follow the example of Reichenbach it will be impossible to predicate to what it may lead them. The great orchidist was a notorious splitter and species maker, but his followers in this country accepted all his decisions without question, and never wavered in faith until the man was dead; then, finding that he had resolved we should not have his collection, his worshippers made the sad discovery that he was but a wooden god after all, but being dead and buried they were denied the gratification of knocking him to pieces.

[Report of Orchid Nomenclature Committee was issued simultaneously with the reading of this paper.]

The raising of hybrid Orchids has brought about a curious crisis in botanical nomenclature. The binomial system may be said to be nowhere in face of the new array of facts. Take a few examples. I will begin with the actual *Cymbidium eburneo-Lowianum*, *Cymbidium giganteum*, and *Cymbidium pendulum*. Then I will effect a cross between *Cymbidium giganteum* and *Cymbidium pendulum*, and the selected offspring shall be called *Cymbidium giganteo-pendulum*. This last I will cross with *Cymbidium eburneo-Lowianum*, and the result

shall be a beautiful Orchid with the interesting name *Cymbidium eburneo-Lowianum-giganteo-pendulum*. And again we have *Dendrobium Wardiano-aureum*, and we have *Dendrobium crassinode Wardianum*. I will cross these, and secure a new beauty to be called *Dendrobium-aureo-crassinode-Wardianum*. We shall have to manipulate generic names in an equally elegant manner; we cross *Lælia* with *Cattleya*, and obtain a new genus to be called *Lælio-Cattleya*, and we cross in an opposite direction to obtain *Cattleya-Lælia*. The broad gauge man will take the hint to keep garden varieties apart from species, and to make more sure of genera than to allow of such barbarities. To him it will suffice that the new genus has no existence as such, because the parents were necessarily not generically distinct; and you do not need that I should add that, however convenient the distinctions between *Cattleya* and *Lælia* may be, they have not the force of dividing lines for scientific purposes. The orchidists are endeavouring to turn the world back to what we may speak of as pre-Linnæan times, and they substitute descriptions for names, and where a definition is wanted they provide a confusion. In passing through a village the other day I halted to light a cigar, and the voices of children arrested my attention. I heard one speak in a pretty manner a bit of rhyme apparently designed to puzzle a Scotch metaphysician, but it appeared to me to fit nicely to the new problem of the identification of an Orchid. The rhyme ran thus:—

Supposin' I was you,
And supposin' you was me;
And supposin' we all was somebody else,
I wonder who we should be.

I submit that we are not to have descriptions in the place of names, and that while the binomial system suffices for all ordinary purposes it should be maintained in its original integrity. The use of supplementary names is allowable only as representing varieties, and may be framed on a variety of plans with almost unlimited latitude, consistent with propriety and convenience. Between liberty and licence in the bestowal of names, common sense will never fail to discriminate, and we must systematically repudiate offensive, deceptive, ridiculous, sarcastic and "jaw-breaking" names, for it is not well that the language of the herbarium or the garden should provoke laughter or the contempt of mankind. Very often our plant names do both to the injury of science and the disgrace of the inventors of the ugly and unpleasant names.

In naming varieties, and especially garden plants, I repeat there must be much liberty allowed, and here ample room may be found for commemorative names, and for such as may be termed fanciful and playful. But common sense will object to freedom in this region irrespective of the class of subjects to which the names are applied. For such things as Dahlias, Pelargoniums, and Phloxes, descriptive names are rarely wanted. Within the limits of propriety any names will serve for subjects that are, generally speaking, of only temporary interest. But in such a group of plants as the varieties of *Ilex aquifolium*, for example, we seem to need descriptive names, those of a personal or geographical character being inappropriate. We have a Holly appropriately named *Laurifolia*, and the name is useful as a guide to the plant. Another is named *Latispina*. This is an admirable guide, for the name exactly corresponds to the character. Suddenly in the midst of Hollies we find *Madame Briot*, where a lady should not be in the midst of spines and sombre colours, and other characters that have nothing especially feminine about them. In full persuasion of the immense aid good garden names might prove in the identification of varieties that have somewhat of the solidity and permanence of species, I bestowed some care in the classification and nomenclature of the *Ivies*, and in the year 1872 published a monograph of the species. In this I adopted or invented descriptive names for all the varieties I could obtain; and you will find them entered as lobed, arrow-leaved, wrinkled, round, angular, and so forth. The personal names I abolished without hesitation. For example, I found an Ivy bearing the name of *Glymi*; and as the *Glym* would not light me to the character, I named it *Tortuosa*, because it has a twisted leaf. One that I found bearing the sweet name *Rhomboides obovata latifolia* I observed had a leaf that might be likened to the Greek letter D, and I called it *Deltoidea*. The world did not accept my proposals with joyful thanks, for in truth I was pretty freely abused in the papers for altering the names. But I allow it all to pass without complaint, and now there is a growing tendency to admit that common sense may by gracious permission have something to do with the naming of garden plants. It goes without saying that the men who knew absolutely nothing about *Ivies* were the most free of their abuse; and I never condescended to tell them as I might have done, that many of the names they condemned as new and ridiculous, were good old names that I sought to re-establish in the place of later names that were altogether inappropriate. Had they looked through the book they might have discovered this; and the discovery would have saved them from a display of ignorance. But you know, critics of books do not read them; they cut them and smell the paper knife, and whatever odour the printer imparts to the book, determines the critics' estimate of its merits.

If you ask me what is to be done, I can only answer that I have more faith in public opinion than in any of our organised societies, councils, and committees. In 1866 I proposed the constitution of a Board of Nomenclature by delegations from all the societies supposed to be interested in the subject. It is doubtful if such a board could be constituted, considering how local and academic the so-called learned societies for the most part are. As the case stands anyone has power to

force into use objectionable names, for the resistance of so-called authorities is of a purely passive and personal kind, and a little perseverance will overcome all obstacles, however philosophical, reasonable, or pedantic they may be. A revising board would need to be in correspondence with all botanical and perhaps with some horticultural societies, not only of Europe and America, but of the world. I do not see anywhere an indication of the spirit that would be calculated to initiate such a movement, and yet, were certain common sense principles agreed upon for a basis of operations, an immensity of good work might be accomplished with but a shadow of the effort that appears to be inevitable so long as we consider the matter in the abstract only. Let us take the Bromeliaceous plants for an example. The late Professor Edward Morren has left for the appropriation of such a board a systematic revision and all the materials for a rectification of nomenclature. One example is as good as fifty. Specialists will be found to differ in their methods of operation, in their views on classification and nomenclature, but as a rule they may be relied upon for minute knowledge of facts, and the business of a revising board would be to turn their labours to account in aid of a distinctly formulated system; the board would have to harmonise rather than invent; and it would have to parcel out the work and keep control in view of fundamental principles.

I am fully persuaded that botany and horticulture are seriously prejudiced by the ambiguous, variable, unpleasant, and ridiculous fashions that prevail in the naming of plants. When the name of a plant causes a curling of the lip or a smile of surprise, that grave men who are philosophers sometimes can designate beautiful objects by ugly terms, those beautiful objects are depreciated by the contempt their names inspire. There is enough lead in the bowels of the earth to keep it steady on its axis; and it is a waste of energy to clothe the flowers of the field with cumbrous loads of botanical stupidity. If this sort of thing goes on this poor old planet will become top heavy and will reel from its proper orbit into some abyss amid gorgons dire where the pursuit of botany will be impossible.



EVENTS OF THE WEEK.—The Royal Horticultural Society's Fruit, Floral, and Orchid Committees will meet in the Drill Hall, James Street, Victoria Street, on Tuesday, June 10th, at 12 noon. At this meeting a silver challenge cup will be offered for competition amongst amateurs who exhibit the best collection of herbaceous Pæonies. The second summer Show of the Royal Botanic Society will be held on Wednesday, June 11th, in the Regent's Park Gardens. The usual monthly dinner and conversazione of the Horticultural Club will take place at the Hotel Windsor on Tuesday, June 10th, at 6 P.M. The subject for discussion will be "Early Strawberries," to be opened by Mr. George Bunyard. The Essex Field Club will hold a meeting at Walton-on-Naze, in conjunction with the Geologists' Association, on Saturday, June 7th, William Whitaker, Esq., F.R.S., F.G.S., acting as director. The train will leave Liverpool Street station at 10 A.M., arriving at Walton at 12.16 P.M.

— WE learn that PROFESSOR OLIVER, who has for many years held an important position as keeper of the Herbarium at Kew, has resigned his office. Mr. W. Carruthers has also resigned the presidency of the Linnean Society, and Professor Stewart has been proposed for that post.

— **CIVIL SERVICE PENSIONS.**—The Queen has been pleased to approve of the grant of Civil List pensions to Miss Charlotte, Ruth, Margaret, and Rose, daughters of the late M. J. Berkeley, F.R.S. A Civil List pension has also been granted to Mrs. Wood, widow of the Rev. J. G. Wood, the well-known popular writer on natural history.

— **DR. JAMES CLARK, M.A. (Edin.), Ph.D. (Tübingen),** Royal Exhibitioner and Associate in Botany, Prizeman in Geology (Edinburgh University), has been appointed Professor of Natural History in the College of Agriculture, Downton, Salisbury. Dr. Clark has recently been employed on important work in the Natural History Department of the British Museum, and is the author of several papers on geology and biology.—(*Nature.*)

— **AMONGST** the exhibitors at the PARIS HORTICULTURAL EXHIBITION, of which a few notes were published in last week's Journal, the name of Messrs. H. Cannell & Sons, Swanley, should have been

included. They were showing a collection of Ivy and Zonal Pelargoniums and Tuberos Begonias, which formed a centre of interest in one of the arcades. A large silver medal was awarded by the jurors.

— **THE WEATHER IN THE METROPOLITAN DISTRICT** has not been so disastrous as some of our correspondents describe, still the cold winds at night have not been favourable to tender plants and early vegetables, and though occasional showers have fallen more rain is still required in some districts. Strawberries are flowering strongly and freely. In Sussex frost has blackened the Potatoes.

— **THE WEATHER IN THE NORTH.**—May 26th-June 2nd. The week throughout, and especially the latter half, has been cold, the last two or three evenings markedly so. Snow has fallen on some of our highest hills, and heavy showers of hail here and there. A change seems to have taken place. Bloom on the Holly, which is reported scarce in some districts in the south, is abundant here. The Hawthorn is now in surprisingly rich flower.—B. D.

— **THE WEATHER AND FROST.**—On the morning of the 31st May we had 8° of frost, which has made sad havoc with vegetation here. Potatoes just coming into bloom are quite black; French Beans, 6 inches high, and Scarlet Runners, 9 inches, are levelled to the ground; Peas, which I expected to pick in about a week or ten days, parboiled, and Gooseberries also where exposed; so are Cherries on standards black. I had just finished planting in the flower garden, and there even Pelargonium Vesuvius leaves are shrivelled, Lobelia leaves black, and Heliotrope of course is almost killed. The young leaves and shoots of Laurel, Ash, Beech, and Ivy quite black. I also notice the Apple blossom, which was very fine and most abundant, is much damaged. The Strawberry blossom I think has suffered worst of all, and a finer show of bloom, finely developed, was never seen here before, have all "black eyes." It is most disheartening, and everything was so promising; but I suppose we must "grin and bear it."—A. V. TEMPLE, Leeds.

— THE frost on Friday night was very severe in the valleys; Potatoes and Kidney Beans much damaged. The young shoots of Oak are as black and dry as black tea. Nut shoots I also notice are killed and dried up.—J. H., *Astwood Bank.*

— **TENDER** crops growing in gardens in low, damp, or exposed situations must have been considerably damaged by the severe frost of Saturday morning, May 31st. Here Potatoes, Runner Beans, and Vegetable Marrows presented a sorry sight, Dwarf Beans on a south border sheltered by a high wall not escaping.—R. M., *Monmouthshire.*

— **THE NATIONAL CO-OPERATIVE FLOWER SHOW** has again been arranged to be held at the Crystal Palace. The date fixed is Saturday, August 16th. Last year the Show attained colossal dimensions, filling the great nave of the Crystal Palace from end to end. The number of exhibits were over 4000, and visitors exceeded 32,000. This year the Agricultural and Horticultural Association of London contributes nearly £200 in prizes, and the Crystal Palace Company £150. It is expected that special prizes will also be offered by numerous London and Provincial Co-operative Societies, as was done last year. The schedule just issued is a fifty-two page pamphlet. It embraces offers of 825 money prizes, besides silver and bronze medals, and—for the first time—a champion gold medal. One new feature is the division of exhibitors into geographical districts. For the more important prizes the country is mapped out into five districts, so that exhibitors from the North will not have to compete against the South, the West, the Midlands, &c., or *vice versa*. The Secretary is Mr. Edward Owen Greening, of 3, Agar Street, Strand, London, W.C., from whom schedules can be obtained free of charge.

— **THE GARDENERS' ORPHAN FUND.**—At a meeting of the Committee held on Friday evening last, Mr. J. Laing in the chair, it was announced that subscriptions were coming in freely in view of the voting for candidates on July 18th, and it is desirable that all payments still due be made as early as possible. There are more candidates than ever, and this proves conclusively the necessity for such a Fund, and an extension of support from the gardening community. The bank book showed a balance of £700, and it was decided to invest £500 of it in Consols. A cheque for £138 14s. 9d. was received from Mr. Arthur W. Sutton, Reading, the Treasurer of the Wildsmith Memorial, as the amount subscribed, and a child will be placed on the books as an annuitant in July. Mr. Robinson, The Gardens, Heversham, Milnthorpe, sent £14 5s. 7d. as the proceeds of a concert, and a cheque for £10 10s. was handed in by Mr. Roupell from Messrs. Rothschild. The

anniversary dinner and election of children will be held at the Cannon Street Hotel on the date above named. Mr. Shirley Hibberd will preside at the dinner, and tickets, 5s. each, must be applied for by July 15th. A very large gathering is expected, and suitable accommodation will be made for all persons who purchase tickets on or before the date named. Sub-Committees were appointed to make the necessary arrangements for the anniversary proceedings.

— **CLEANING PONDS.**—Could any of your readers give me any information how to clean our ponds in the grounds here? They are covered in green slime, and the more we take it out the faster it seems to come, and looks so bad. There are no weeds in the ponds, and there is always water coming in and going out. We cannot very well empty them as there are fish in them. I should be pleased if any reader could give information as to the best way to deal with them.—A. MCK.

— **WHITE ZONAL PELARGONIUM AMY AMPHLETT.**—This beautiful and useful variety was sent out by Messrs. Pearson of Chilwell, Nottingham, last spring. The flowers are large, circular, and pure white. One of its best qualities, however, is the value of the flowers when cut. They will remain perfect in water nearly a week, and even then the petals will not fall, although they commence to decay. I am an old Zonal Pelargonium grower, and believe it to be one of the most valuable varieties in cultivation.—W. G., *Sutton, Surrey.*

— **APHIS BLIGHT.**—The weather has been particularly favourable for the development of these pests this season. Plums and Gooseberries have suffered terribly. When rolled up in the young foliage it is difficult to reach these pests, but we may avoid this scourge another season by syringing or washing the trees before the bloom opens, when the viviparous old insects are depositing their young. This I pointed out in January and February at the Evesham Conference, and having tested a large Green Gage Plum tree, I have splendid healthy foliage, a treat to see nowadays, with no trace of aphid, whereas surrounding trees are shrivelled up.—J. HIAM.

— **THE DUTCH HORTICULTURAL SOCIETY.**—At the last meeting of the above Society the Committee awarded first-class certificates to Mr. W. J. Van Lansberge, Brummen, for *Odontoglossum vexillarium*, *O. Cervantesii* lilacinum, and *Cattleya Schroederiana*; to Messrs. E. H. Krelage & Son, Haarlem, for a collection *Tulipa Billietiana*. Honourable mention was also accorded to Mr. W. J. Van Lansberge for *Vanda teres*, *Dendrobium mesochlorum*, *Cattleya Mossiæ*, and for a collection of Orchids; to Messrs. E. H. Krelage & Son for a collection *Narcissus*, a collection early flowering Irises in forty-two different species and varieties, and a collection of Darwin Tulips; to Mr. J. Th. W. Neeb at Nykerk for *Vanda tricolor formosa*; to Messrs. Ant. Roozen & Son at Overveen for a collection of *Lilium Thomsonianum* plants in flower.

— **AN EXHIBITION OF PINKS FOR THE NORTH.**—An attempt is being made to hold, during the present year, a Pink Show at Manchester. It is proposed that it be held in connection with the Rose Show to be held in the Botanical Gardens, Old Trafford, on July 19th, as this date will suit the Pink growers in the North. The matter is in the hands of Mr. Samuel Barlow, Stakehill House, Castleton, Manchester, who will shortly issue a circular inviting support and subscriptions towards a prize fund. The Southern Show of Pinks will take place on June 27th, in connection with the Rose Show at the Royal Aquarium, Westminster.

— **THE WEATHER IN MAY.**—The past month here has been on the whole a delightful spring month, with abundance of sunshine with refreshing rains at intervals. Rain has fallen upon eight days, maximum for any twenty-four hours being 0.60 on the 9th May, minimum for any twenty-four hours being 0.03 on the 11th; total amount for the month, 1.72, being much below the amount registered during May, 1889, when 3.55 of rainfall was registered. But singular, from the 1st of January to end of May, 1889, 10.30 of rainfall was registered here, whilst from 1st of January to end of May this year 10.31 has been registered, thus making the total amount for the first five months of each year nearly equal.—E. WALLIS, *The Gardens, Hamels Park, Buntingford.*

— **THE TOTAL RAINFALL AT CUCKFIELD, SUSSEX,** for the past month was 1.71 inch, being 0.24 inch under the average. The heaviest fall was 0.60 inch on the 9th. Rain fell on ten days. Highest shade temperature 76° on 24th. Lowest 35° on 3rd. Mean day temperature 63.2°. Mean night 43.1°. Partial shade readings 4° above the average. On the whole a bright favourable month. Since the 25th hard, dry north winds have prevailed, and as only 0.36 inch of rain has fallen

since the 11th, more rain is very much wanted for all growing crops. A fair crop of Apples are now swelling. Caterpillars plentiful.—R. D.

— **THE ROYAL BOTANIC SOCIETY.**—A London daily paper has the following note:—"The Duke of Teck, who is President of the Royal Botanic Society, occupied the chair at the last Friday afternoon lecture, which was delivered by Mr. Holmes, F.L.S.; the subject being "British Mosses." A very interesting fact disclosed was that, notwithstanding the difficulty in studying these minute organisms, most of the discoveries among them of late years have been made, not by scientific men, but by Lancashire operatives, with whom the subject is quite a hobby—and a pretty hobby too. These tastes would seem to be traditional among the mill hands of cottonland, for Lord Brougham made a point of this same refined employment of their leisure, when speaking in the House of Lords in favour of the first Reform Bill." To horticulturists it has long been known that the workmen of the North of England not only excel as field naturalists, but as florists as well, and as amateur cultivators or collectors of British Ferns.

— **GARDENERS OUT OF SITUATIONS.**—On this subject "W. T." writes:—"Gardeners, like other workmen, are subjected to be out of employment in all times of depression. This suggests as a remedy that fewer should learn the business. Employment for many might be had in other countries, but a system of pioneering should be established so that reliable evidence could be sent home upon the country, its climate, produce and demand for men, before any are sent and assisted out. Then at home, although there is not work to be had on gentlemen's estates within the walls of the gardens, there is no gain-saying the fact that millions of acres might be greatly improved in every respect, and would in a short time bring in an income of pounds instead of pence to the owners. During the end of last century and beginning of this one the Duke of Argyle reclaimed much ground, giving employment to many during the hard times of that period. I will not say how the ground could be acquired for that purpose. Philanthropic gentlemen like the "Good Duke" might do something in the scheme, but failing that an Act of Parliament might be necessary. Men willing to work ought not to be starved."

— **PRESENTATION TO MR. J. S. JOHNSON.**—This gentleman who has been connected with the firm of Messrs. Hurst & Son, seed merchants, Houndsditch, E.C., for the space of thirty-seven years, and who, in consequence of failing health, has been compelled to retire from it, was, on the 24th of May, presented with a mark of respect and esteem by the employes of the firm. Mr. Swift occupied the chair at a gathering in the office, and the presentation was made by Mr. Hugh Acton, in the unavoidable absence of Mr. N. Sherwood, the head of the house. The present consisted of a very handsome centrepiece and a pair of candlesticks. The former have the following inscription:—"Presented to Mr. J. S. Johnson by the staff of Messrs. Hurst & Son, on his retirement after thirty-seven years' connection with the firm, as a token of their regard and esteem." In making his acknowledgment, Mr. Johnson expressed his gratitude for the mark of their affection. He was leaving the firm solely on the ground that he felt he must husband the strength that remained to him. He felt a great honour had been done him. He had never before heard of such a presentation being made in the seed trade, and the handsome present they had made him would be treasured by him as a lasting remembrance of the old friends he was leaving behind him. The proceedings closed with votes of thanks to the Committee and Chairman.

THE CATERPILLAR SCOURGE.

THAT some persons who are in "happy ignorance" of the destructiveness of the caterpillar of the Winter Moth (*Cheimatobia brumata*) in orchards and fruit gardens should regard various statements that have been made respecting it as not untinted with exaggeration is only what might be expected. The persistency of the attacks of the enemy, its extraordinary increase, its terrible voracity and remarkable invulnerability to ordinary insecticides, can only be appreciated by those who have either had to wage war against the foe or seen the desolation it leaves behind after an invasion. Mr. John Higgins (page 443), whose trees are free from insects, evidently thinks it right that he should have Apples, and other persons caterpillars, and he almost implies that those who are victims of their attacks are either visionaries frightened at their own dreams, or that they deserve the visitation as a judgment on them for killing birds. He cannot know that where birds abound and are protected that caterpillars much more abound, and when unmolested leave the trees as destitute of fruit and foliage in May and June as his

own are at Christmas. Still, he may, perhaps, be inclined to answer in the trustful or fatalistic lines of Pope :—

“ In spite of sense, in erring reason’s spite,
One thing is clear—whatever is, is right.”

I certainly do not think it right that insect-eating birds should be destroyed, but who will say it is wrong to destroy caterpillars where there are not sufficient birds able or willing to eat them? Those who do say so must be content to share with the pests in the wholesale destruction of human food, and, if they can, be thankful.

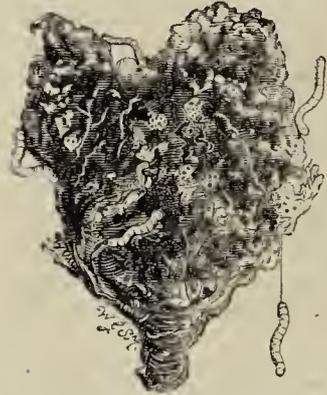


FIG. 68.—DEVoured TRUSS.

Some kind friend has sent me a “cutting” from a newspaper in which Mr. Jabez Hogg, in supporting Mr. Higgins, says, “Syringing trees with a solution of a deadly poisonous nature is as unreasonable as it is unscientific,” and would “settle all bird life.” At Glewston Court Mr. Campbell’s splendid bush Apple, Pear, and Plum trees have been syringed twice a week for the past two months, yet in the plantation chickens are kept, and have free range through the plantation for eating the caterpillars that are shaken from the trees, and I do not know that any of the birds have been “settled.” Moreover, the practice denounced as “unscientific” is officially advised by Mr. Charles Whithead of the Intelligence department of the Board of Agriculture, and he publishes the following in support of his recommendations :—“Professor Lintner, entomologist of the State of New York, in a recent letter says that in his opinion fruit growers who do not use Paris green as a remedy against caterpillars infesting fruit trees are guilty of culpable negligence.”

Mr. Jabez Hogg goes on to intimate that “fruit growers may save themselves all the trouble and expense of syringing by the preservation of our feathered friends,” and if they neglect this, “retribution will surely come, when

“ Hosts of devouring insects crawled and found
No foe to check their march, till they had made
The land a desert, without leaf or shade.”

These lines admirably represent what has already come in districts

where birds are cherished and preserved, therefore not as a “retribution.” A “foe” is obviously needed to, we will say, assist the birds to

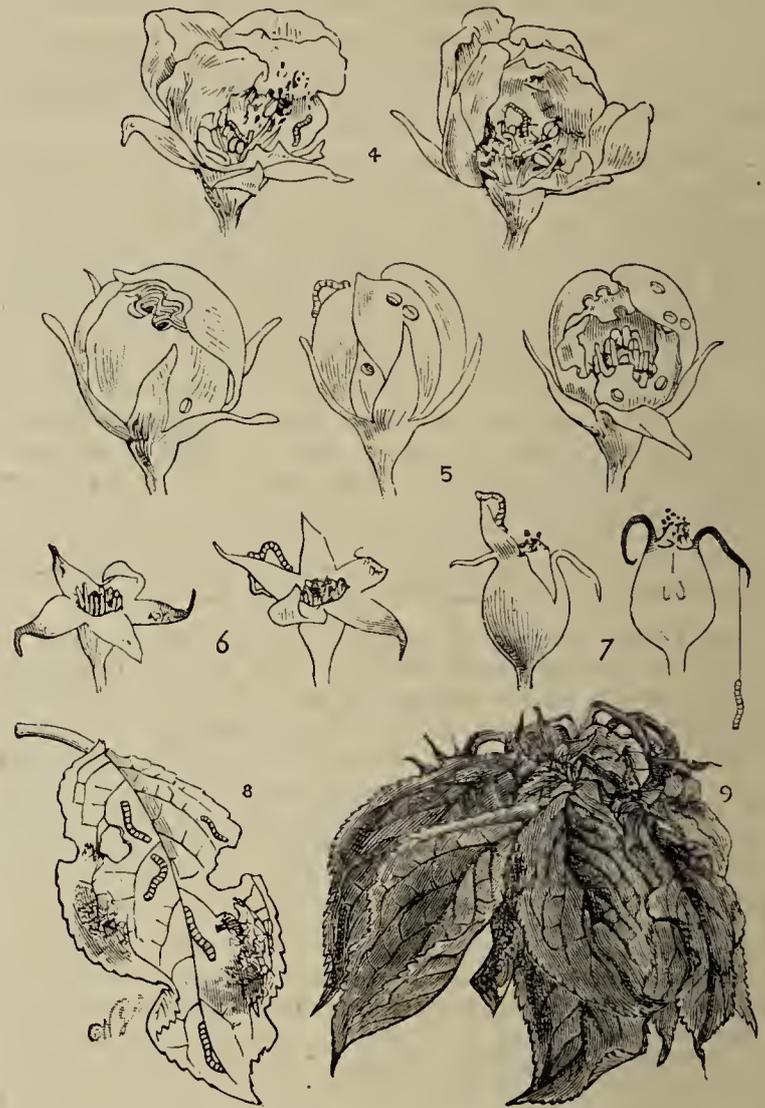


FIG. 70.—CATERPILLARS AND PARIS GREEN.

“check the march” of the devouring pests which crawled and ate till not a leaf was left.

A great lover of fruit and of birds found he could not have both on his bushes together, because the birds ate all the buds in spring, and in summer devoured his Strawberries. “Oh! net the beds and bushes,” say the bird preservers. But is precluding birds from food “preserving?” Is it not more like starving them? The gentleman in question did, however, net from birds, and very thoroughly. He had the trees and bushes in a large square in his garden, which he enclosed in a huge wire cage, with doors for ingress and egress. This fruit cage is tall enough for a tall man with a tall hat to promenade amongst the trees and bushes, and there is plenty of fruit on them.

Now, please note, with the object of learning whether he could have fruit without birds, he determined to exclude them at all times. Here is the curious result. Before the enclosure his Gooseberry bushes were defoliated with caterpillars, but now they are free from the pest. He confesses he cannot account for the change, but has been driven to the conclusion that “there is a good deal of sentiment in the feathered friends’ fraternity,” and intends keeping his fruit cage closed throughout the year. It is not quite safe to dogmatise on these things.

Mr. Campbell of Glewston and his gardener have done good service to fruit growers in the discovery they made of the favourite nesting places of the insects, the consequence being the destruction of millions of eggs. Mr. Campbell has further added to our obligations by his having sent examples of the working of the caterpillars to Mr. W. G. Smith, who has well depicted them in the illustrations.

Fig. 68 represents the remains of a cluster of blossom buds. It is a sample of others on trees which had been left for the birds to take care of, but instead of these eating the caterpillars, it will be seen the caterpillars have devoured both the flower buds and the surrounding leaves. Ruin more complete could not be imagined. It is the result of under-rating the power of the enemy. Nothing was done to the trees, and thus the orchard is a “desert without leaf or shade.” Had Mr. Campbell’s 6000 trees been similarly neglected, they must have been in the same deplorable condition. But they were saved by a fierce and prolonged combat with the foe, and Paris green was the most effective weapon in the subjugation.

Now we pass to fig. 69. The top sketch (No. 1) shows an expanding bud just attacked by caterpillars so small as to be scarcely seen, though

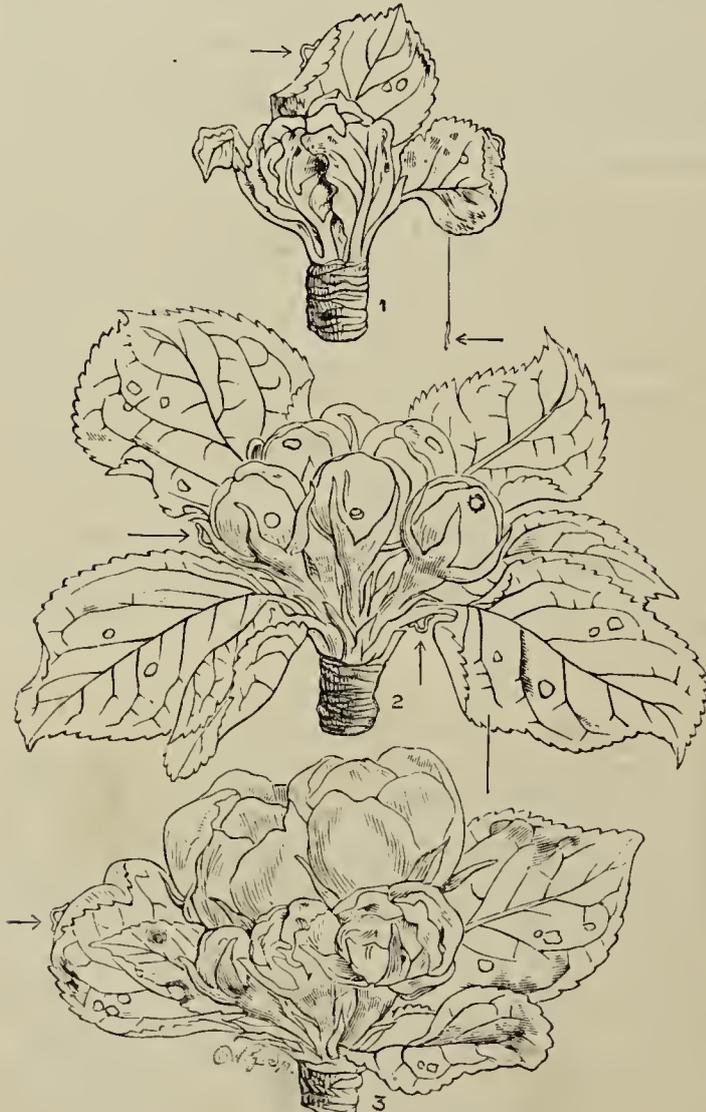


FIG. 69.—ATTACKED BLOSSOMS.

two have been enlarged a little to render them visible. In No. 2 we find the blossom buds advancing towards expansion, and a casual glance at the tree would perhaps leave the impression that it was free from the pest; but examine the swelling petals closely, and it will be seen they have been pierced. This is made clear in the illustration, but the untrained eye would not detect the "pin holes" without a magnifying glass. In No. 3 three buds are attacked, two untouched, and the difference is apparent.

Turning to fig. 70, we see the results of the enemy in his citadel. No. 4 shows two buds with pistils and stamens partially eaten by the miniature caterpillars. No. 5 shows the "pin-holes" more clearly, and all the organs of fructification eaten. Nos. 6 and 7 show the organs of Pear blossom destroyed, and a small fruit attacked, with section indicating collapse. From the blossom we pass to the leaves for showing at once the efficacy and danger of Paris green. In No. 8 it has killed all the caterpillars on the leaf, but not the leaf itself, but in No. 9 it has killed all the leaves and flower buds, which hang flaccid and black. Here we have at a glance examples of the use and abuse of the poisonous preparation. The powder does not dissolve in water like sugar, but the fine particles are suspended in it by agitation. This must be constant or they will sink, and the water towards the bottom of the vessel be so heavily charged with poison as to destroy the leaves of trees to which it is applied, as the dead truss shows.

It is better not to disguise the fact that Paris green is dangerous. An entomologist writes in a letter before me, that owing to the insolubility of the substance "grains of it are sure to lodge in the angles of twigs and branches, within buds, &c., and the probability is that afterwards, as the drying process is completed, these may be wafted through the air to the injury of persons approaching the trees operated upon. Again, there is to be considered the effect of this potent article upon the trees; first, in its being applied to branches and foliage; secondly, by its descending to the roots, for in the spraying process some of the liquid must fall on the soil below. Chemists and fruit growers whom I have consulted are unanimous against its use, and there is really no difficulty in finding washes, which though less poisonous are quite efficient in caterpillar killing."

Herefordshire and Gloucestershire fruit growers will be very delighted to know what the washes alluded to are. Hellebore, petroleum, alum, quassia, and, so far as I know, everything else that has been recommended have been tried, and while several preparations destroyed the Gooseberry caterpillar they have had no such effect on the larvæ of the winter moth. The tenacity of life of these caterpillars seems remarkable. Immersion in strong solution of hellebore (8 ozs. to the gallon) did not kill them. They crawled about in petroleum and water stronger than could be applied to trees. Mr. Wise of Toddington says they "enjoy alum." Mr. L. Castle has had them alive in Paris green water for twenty minutes. Nothing appears to kill them by contact except, perhaps, quassia and softsoap, and this has not been found efficacious at Gleston. The last recorded formula from there is 10 lbs. quassia chips and 7 lbs. of carbolic soap boiled together and mixed with 5 ozs. of Paris green with 100 gallons of water. That has answered so well both against the caterpillar and insects that, as we were told on page 427, it will probably be the concoction in the future.

Miss Ormerod's recently issued report, "Observations of Insects and Common Farm Pests during the Year 1889," is a work of great value, in which various caterpillar remedies are discussed, including Paris



FIG. 71.—WINGED MALE AND WINGLESS FEMALE WINTER MOTHS.

green, and the paste form is recommended as the safest to use. It is there stated, on the authority of Dr. Lintner, that "arsenic cannot be absorbed and assimilated by the plant in the economy of growth." All farmers and gardeners should possess this Report,* which can be had for 1s. 6d. Paris green has been used in the United States

and Canada for years, and some of the large fruit growers there say that without it their occupation would soon be gone. At the same time anything equally efficacious for the purpose in question, and less poisonous, would be accepted as a boon by cultivators of fruit.

The authors of the caterpillars, the winged male and wingless female winter moths, are represented in fig. 71. Their movements are

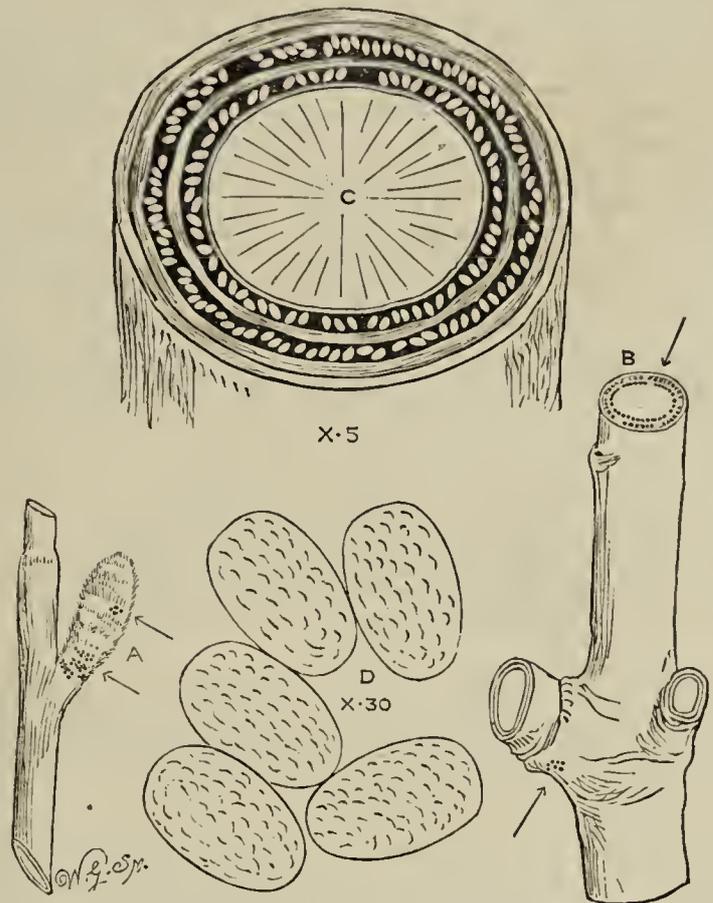


FIG. 72.—EGGS OF WINTER MOTH.

A, shoot natural size, with eggs on bud; B, stem natural size, with eggs in the end; C, the stem increased 5 diam.; D, egg magnified 30 diam.

nocturnal, and for the purpose of completeness the illustration of their nesting places (fig. 72) is reproduced.

In connection with the depredations of the caterpillars, though not perhaps inseparably, Mr. W. G. Smith directs attention to an oïdium that attacks Apple blossoms. He says, "At this time of the year, and at the very time when the larvæ of the winter moth are at their busiest, it is common to see the tenderest terminal leaf shoots and the blossoms of Apples attacked by a fine white mildew. It is only when the attack is very bad that the mischief is noticed by gardeners; slight attacks are generally unnoticed. As the mildew grows with virulence upon the stamens and styles, it follows that the resulting fruit is more or less injured, and in some cases totally destroyed. The fungus is an oïdium, related to the oïdium of the Vine, Hop, Strawberry, &c., and it often works hand in hand with the larvæ of the winter moth. Up to the present time botanists have not given this oïdium a name; this is an extraordinary fact, as most small fungi are afflicted with a considerable number of names. The oïdium of the Apple is probably an early condition of a fungus named Erysiphe communis, a common parasite of Buttercups, &c., or of Podosphæra clandestina, a common parasite of the Hawthorn.

"The illustration (page 468) will give an idea both of the work of the winter moth and the oïdium in their attacks upon Apple blossoms. The left hand figure at A shows stamens with their filaments and anthers badly eaten away by larvæ at B and D; whilst at C C is shown the flocculence caused by the oïdium, enlarged ten diameters. The central figure shows the styles of the Apple blossoms badly eaten off by larvæ at E and F, and destroyed by the flocculent growth of the oïdium at G, also enlarged ten diameters.

"It requires a magnification of 200 diameters to see the nature of the mildew. This is shown in the right hand illustration at H, enlarged 500 diameters. The oïdium grows amongst the pollen grains as well as upon the stigmas, and to show the minute size of the fungus a single pollen grain of the Apple is illustrated to the same scale, resting on the oïdium at J.

"When the larvæ of the winter moth and the oïdium make a combined attack on Apple blossoms there is of course no chance whatever of fruit. The two pests, however, do not always work in company, but the oïdium is often overlooked from its minute size, or its resemblance to a minute healthy bloom."

After the illustrations above given it is hoped that those growers of fruit who have enjoyed happy immunity from the caterpillar scourge

* London: Simpkin, Marshall, Hamilton, Kent & Co., Limited.

will not make light of what will prove, if it spread, the greatest impediment to fruit culture in this country.—J. WRIGHT.

MR. J. HIGGINS' letter quoted on page 443 is rather amusing to those troubled with caterpillars. Had he had a serious attack of the pest he would have found it a "serious and costly" thing not to use Paris green or London purple. Complaints of trees being killed outright are becoming by no means uncommon in this neighbourhood. An orchard of young standards that I saw yesterday is completely ruined. Long branches are dead to the main stem, and the trees have now only a few leaves on, and those riddled by the enemy. Much nonsense has been circulated about birds. They are of little service so far as caterpillars are concerned, starlings and cuckoos excepted, which do an immense amount of good by feeding on caterpillars from early till late. Sparrows and other small birds I have not seen touching the pests at all. As to Paris green "settling" birds, I should want strong proof to believe it. Birds of nearly all sorts are plentiful with us owing to woods being near our fruit plantation, and fowls have a free run among the fruit trees, and though the trees have been sprayed ten times this season with Paris green, I have not observed the least injury to birds or fowls. I have, perhaps, as much trust in Providence as Mr. Higgins, but at the same time I feel convinced that if it had not been for the aid of Paris green we should have lost some thousands of trees. "Heaven helps those who help themselves," and I am thankful to state that our trees are most of them looking well in the foliage, and several are promising a fair crop of fruit. Last year we did not use Paris green, and at this time twelve months ago our trees had not a vestige of green on them. I am sorry to record another enemy to Apple trees, viz., psylla, which has, I believe, proved injurious in America. At present my knowledge of this is very limited. Its appearance is very much like the green aphid to the naked eye, but seen through a magnifying glass its body is differently formed. Perhaps I may be able to write more fully on the new pest at some future date.—S. T. WRIGHT, *Glewston Court Gardens*.

I AM highly pleased with the results of my experiments with Paris green on fruit trees and Roses. I am sorry I have been over-cautious on account of its poisonous character, and can now see the mistake, but as we usually have to pay for experience, I hope for greater results another season.—J. HIAM, *Astwood Bank, Worcestershire*.

A GENTLEMAN informs us that caterpillars have taken possession of the hedges on his estate, and fears an attack on his fruit trees. On this subject Mr. Wm. F. Gibbon writes to the *Worcestershire Herald*:—"In Worcestershire we have much land planted in corn, and hedges are kept so clipped that in time insectivorous birds can with difficulty enter them. Caterpillars consequently get the upper hand, and last year our hedges in June were to be seen in many places as bare as at midwinter. Some may ask, How do these insects wander and traverse spaces from the hedges to orchards and plantations? It is accounted for, that in our hedges Apple, Pear, Oak, Elm, and other trees are permitted to grow, and the caterpillars ascending these trees spin out a web and allow themselves to be wafted by every breeze until alighting on pastures new to them. In my rather extensive plantation of 160 acres, I found last year by grease banding my trees in October I had no show of caterpillar ravages, except in two small areas in proximity to close clipped hedges. Hedges, of course, must at times be curtailed and kept within bounds, but the operation ought to be deferred till the end of December, or between the New Year and early part of March, so as to permit of the eggs of insects being deposited and removing them before being hatched."

The suggestion of deferring the clipping of hedges till after the eggs of the winter moth are deposited is good; but the moths, not the caterpillars, "traverse spaces" from hedges to orchards, the winged males conveying the wingless females to the trees.—J. W.

GARDENERS' ASSOCIATIONS AND FEDERATION.

GARDENERS' associations have so increased in numbers, and are playing such an important part in the education of young gardeners, that I have often thought that possibly some scheme may be devised whereby their sphere of usefulness may be extended. It is very gratifying to note that in some instances handsome libraries have been established, and the best of talent procured in the production of papers on some of the most interesting and important subjects, with the result that a vast amount of useful work is done in the dissemination of knowledge among the younger members of the profession. But, great as are the advantages of this local co-operation, it has occurred to me that possibly still greater advantages may be gained by a federation of the various associations throughout the country. Unity is strength; for this reason, therefore, I would humbly suggest that a meeting of delegates as representatives of the various associations be held for the purpose of considering in what way they can co-operate so as to facilitate the teaching of practical and scientific horticulture. I believe if we can only create a unity of purpose by persuading gardeners to unite in their efforts to advance the educational interests of their profession great good would result. For my part I see no reason why we should not, like other less important societies, hold an annual conference of members from the federated societies at which all important business in connection therewith may be considered, and in addition to this arrangements may be made for both practical and scientific examina-

tions for young gardeners, the successful candidates to receive certificates setting forth the various subjects in which they may have passed. These they would find intensely valuable in after life, when seeking an appointment as head gardener. Arrangements may likewise be made at these conferences for an exchange of papers, which would be a matter of convenience, and would oftentimes relieve secretaries of much anxiety. We English gardeners are, I believe, somewhat behind in the matter of education. Let us, therefore, awake from our slumbers and manfully try to formulate some scheme that will best supply educational opportunities to those among us who are most willing and anxious to help ourselves. Only let us remove the brake of sloth and indifference from the wheels of progress and rather push forward than impede, and I believe we shall at once secure the sympathy and support of every employer worthy of the name. "Forward" should be our motto, and if a move is made it should be on the principle of equality, no one society dominating over another, but all should be animated by the same desire to elevate by every possible means the educational position of the British gardener. However, as this is a wide and important subject, I hope it will be taken up and discussed by men of a higher position and more able to handle the subject than myself. My only desire is to try and weld together the intentions and aspirations of these various associations into one common object, and if possible to forward a work they have so well begun, and which, I believe with our united efforts, may become a most powerful agent in the progress of both practical and scientific horticulture, and thereby be the means of adding to the

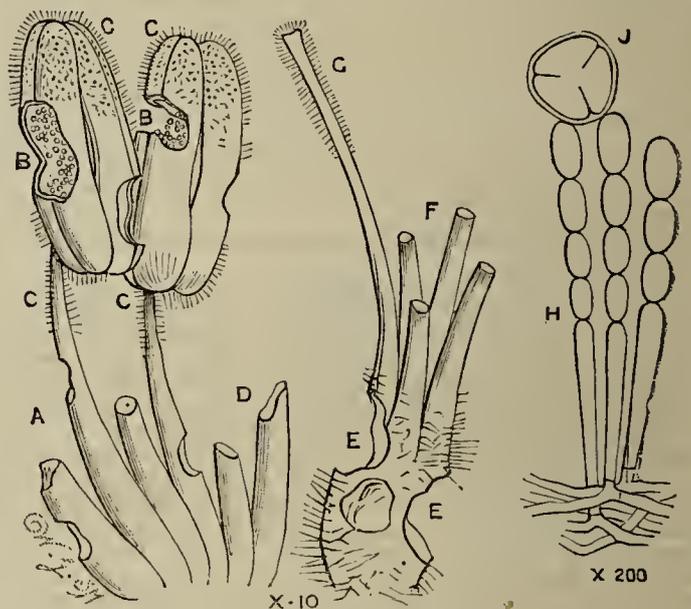


FIG. 73.—STAMENS AND STYLES OF APPLE BLOSSOMS DESTROYED BY LARVÆ AND AN OÏDIUM.

pleasures and comfort of the whole gardening community. Having made this humble effort to raise a discussion upon an important question, I shall anxiously await the opinion of others; at the same time I hope something may be done in the way of federation, and however humble the beginning it shall have my earnest support.—J. HUGHES, *Birmingham*.

AN AMATEUR'S GARDEN.

A MILE or two from Beckenham Station, on the L.C.D.R., is a beautiful district of the true Kentish character, which is appropriately named Eden Park, and visiting it on a bright day in May, with the abundant trees in their freshest attractions, it seemed to be a veritable Eden. Villa gardens are seen there in something better than the conventional suburban style. The gardens are mostly of moderate extent, but they are diversified in aspect and truly gardenesque in design. One of the best of these villas is Homewood, the residence of W. Bullivant, Esq., the garden attached to which is a model as regards condition, good culture, and of its occupant's interest.

The glass houses are not numerous, but they are well stocked, and there is abundant evidence throughout of the close attention accorded to whatever is grown. Vines are vigorous and promising substantial bunches, ancient Camellias are well furnished with growth and foliage, and have yielded a bountiful harvest of flowers. Then in the stove we find Gloxinias of an excellent strain with handsome flowers of varied colours, and with luxuriant foliage, proclaiming the satisfactory character of the treatment they receive. Eucharises are another of the specialties at Homewood, and better plants could not be desired, yet they have been rescued from the virulent attacks of that dreadful pest "the mite." It is to be hoped that Mr. Crosswell, the attentive and thoroughly practical gardener in charge, will give the readers of the *Journal of Horticulture* a full description of the method he has adopted with so much success. The presence of the "mite" some time since was a demonstrated fact, the condition of the plants indicating only too surely, and the microscope as certainly proving, the presence and work of what some still consider a mythical enemy. Yet there are the plants,

healthy in leaf and bulb, and as floriferous as the most exacting cultivator could desire, absolutely free from disease and insect.

This by the way, the special object of my visit was to inspect the Calceolarias, and well worthy were they of a journey to see. I have seen some thousands of amateurs' gardens in all parts of Great Britain, and Calceolarias in a good proportion of these, but I do not remember ever seeing plants to surpass in healthfulness, in number, size, and form of flowers, those grown at Homewood. The seed was last year selected from a few chosen plants, and the results this season prove that the selection was a judicious one, while with a continuance of attention a "strain" will be formed equal to some of the most celebrated. Much depends upon a good start in everything, and it is evident that at Homewood a capital start has been made with Calceolarias.

But there are many points of interest that might be dilated upon, not the least of which are the Roses in pots, among them being the wonderful Maréchal Niel cuttings, of which a note was published in this Journal recently. All the other Roses are, however, notable for their clean healthy condition and abundant flowers, which will soon be succeeded by the plentiful stock of vigorous plants out of doors, for Roses are great favourites with Mr. Bullivant and his family. Strawberries, too, are forced very successfully, and one remarkable fruit was obtained this year weighing 3 ozs., and formed a considerable item in the dessert. Altogether there is a very agreeable atmosphere at Homewood, and it is especially pleasant to witness the feeling existing between master and gardener, the latter studying his employer's wishes in every detail, and the former endeavouring with the utmost cordiality to encourage a young and skilful man to advance in his calling.—VISITOR.

FRUIT FROM THE CAPE.

HAVING seen in the Journal (page 415) some remarks on fruit from the Cape by "J. T.," I enclose the *Annual Report* of the Cape Agricultural Society, from which you can publish an extract if you think it desirable.—J. WILLARD.

"According to the promise made by Sir Donald Currie to a deputation from the Cape Agricultural Society, the R.M.S. 'Grantully Castle' was fitted with a cool chamber for experiment consignments of fruit to England. Valuable prizes were offered by this Society for competition in Grapes, Peaches, Pears, Apples, &c.; few exhibits, however, were received. The fruit was dispatched on 13th February last in the above-named vessel, consigned to M. J. Willard, an active member of the Fruit Committee of the Royal Horticultural Society, who gave the following report on the condition of the fruit when received:—

"Holly Lodge Garden, Highgate, London, N.

"Dear Sir,—Your two letters came duly to hand. I called at Messrs. Silberrad's, Crutched Friars, and left instructions for the cases to be sent on to me as soon as possible after landing. They accordingly came on Wednesday, March 6th, with the exception of No. 7 case. Messrs. Silberrad wrote to me to say that inquiries should be made about it, and that it should follow; it came on March 9th, Sunday. I opened it at once, and regret to say every Pear was quite rotten; it had the appearance of having been opened and repacked; it was not full, and the Pears were packed in hay. It appears the owners of the steamer had some cases as presents, and this was taken by mistake with them. Now I will deal with the worst cases first. All three boxes of Melons were bad, with the exception of one fruit in No. 5. It was a good-looking fruit netted, but not much ribbed, and I should think as small as any of them; but as most of them were quite rotten I could hardly tell what they were like. The decay of the Melons had made room for the Pears to knock about, and they had got mixed up with the pieces of the decaying Melons, so that they were partly spoiled. The flattish ones with the long stem are very good, but the larger and better looking is almost tasteless. So different are they in appearance from our Pears that I omit any name as to sort, but rather depend on describing each as near as I can, and this applies also to the Grapes. Box No. 3 of the Grapes is the best; both have a Muscat flavour—that is, the dark and the light, I should think, if not the same, are very near the Muscat of Alexandria. No. 2 the next best, and No. 1 not so good as the others in any way. In my opinion they should be ripe or very near so before packing, the green ones being sour. But to send Grapes to be acceptable in Covent Garden you would have to dispense with cork packing and tissue paper. By the time the cork is separated from the bunches the Grapes have a very uninviting appearance, and would fetch next to nothing in the market. I took some to a fruiterer in Covent Garden market, and this is his opinion. Could they not be put in shallow boxes, say two layers deep, without any packing material beyond a piece of stiff paper under and on the top, or say a little straight straw under, then a layer, a little more straight clean straw, another layer, and straw on top? As you know, filling a box is not packing; they require to be built in as tightly as possible without crushing. If some means could be found to send them clean and fairly ripe, then I think they might sell fairly well at this season; but in England now glass houses have been built on a large scale, and I don't think Grapes were ever so cheap before at this season. Just a word as to Pears. In my opinion the early sorts, such as Williams' Bon Chrétien, will never pay to send; they are soon over. The later sorts, as Easter Beurré and Glou Morceau, last much longer in condition, and would from now

onward fetch a good price, as Pears are now getting scarce in the market, our English being about over. Good dessert Apples also would sell, but the packing is the great point—paper somewhat stiff is better than soft. I have to-day sent some of the best Grapes to Mr. Barron, Superintendent, Royal Horticultural Gardens, Chiswick, and asked him to write me his opinion, which, if I get it, will enclose with this. After all the trouble your Society has taken I feel anxious to do all I can and to put the matter in fairest light possible. Appearance is the first consideration, then flavour, for the London market. Large quantities of Grapes are now grown in the Channel Islands for the early market. These begin to come into the market in May.

"Enclosed I send Mr. Barron's letter just received. I may say that I cut the decayed berries out of the bunches sent to him. In other respects I put them in the cork packing as received, and may add that I have known Grapes packed in bran, but they were wrapped in paper first, so that the bran did not get amongst the berries. If you could send to England such Grapes as were packed in No. 3 case at this season of the year it is worth another trial, and I would advise sending either without or with as little packing as possible, and if you could consign them to some house in Covent Garden no doubt they would suggest the best mode of packing, &c., as they are constantly receiving fruit from abroad. And now I think I have written you in full, but if in the meantime I can learn anything as to the best plan of packing for long distance I will forward such to you on some future occasion.—J. WILLARD."



MARÉCHAL NIEL ROSE.

THERE has been so much said and by so many respecting the cultivation of this ever lovely Rose that I scarcely know where or how to begin. A few remarks, however, may not be out of place in reference to a house here. In the early part of 1884 we did away with one of our vineries (30 feet by 16 feet), and in January, 1885, we planted five Maréchal Niels and one Fortune's Yellow; the former were budded on Briars, the buds being then in a dormant state. That season each bud produced 60 to 80 feet of wood, the result being we cut nearly 700 blooms from them. After they had finished flowering I cut them back to one eye. So well did this system act I have ever since adopted this plan, with such marked results that I shall ever continue it. We have this year cut over 2000 blooms. They are trained and tied to wire 14 inches from the glass; the annual shoots make from 20 to 25 feet, and 3 or 4 inches apart; the size of wood vary from 1 to 2 inches in circumference. One and all who grow this Rose are ever afraid of the appearance of the canker that so often fatally destroys the best of plants. Most growers are aware also that it is the overflow of sap that is the cause of the ever regretful disease. Prevention is better than cure. Now, nine times out of ten this Rose is pruned when full of sap, and consequently the buds where pruned back to are unable to receive the amount of sap that is flowing; the result is the sap has nowhere to go; the earth cannot again receive it, therefore it must have vent somewhere. Subsequently we find the bark in various places splitting from it, and there is the canker brought about by our own hands. It is a fatal mistake to treat them thus in my opinion.

The Roses here never receive any water after we commence cutting, which lasts about a month. At the expiration of this period they are cut back to one eye as above stated. By this time the sap in a thorough declining stage, syringing is immediately commenced in order to prepare the eyes (cut back to) to receive the sap as it gently flows. In ten or twelve days watering is commenced, with clear tepid water, and not too much of it until the small shoots appear, when a most liberal supply must be given. This is often continued. If the plants break weakly we give liquid manure, or, what is better, a good sprinkling of native guano forked in the border. If fairly good growths are made, no more liquid or native guano is applied until just before the flower buds appear. A good supply is then given with excellent results, and a sure prevention of the canker. I am of opinion that if this method be strictly carried out there will be no necessity for cutting and scoring the trees described by some writers—at least that is my experience of our sixteen years' standing with this Rose. As to air-giving, we seldom give bottom air unless very hot, and in winter none at all only on bright days, then just for one or two hours' duration. Fumigating is occasionally done, after which we syringe with a half-pint of paraffin to four gallons of softsoap water, hence they are kept clean, and always have a healthy appearance. I send you a photograph, Although a bad one, it shows last year's growths. If any advantage, I will send one of the house when the roses are cut down, which then undergoes a thorough cleansing.

Kindly return photograph. If any of the above remarks are of any use to you they can be utilised as you may think fit.—J. B. JONES, *The Grange, Ellesmere, Salop.*

[We have seen the Roses, which are much better than the photograph, and Mr. Jones is to be congratulated on his excellent work.]

NOTES ON ROSES.

[A paper read on May 14th, 1890, at the Monthly Meeting of the Cambridge Horticultural and Florists' Society, by Mr. Alfred Chater.]

"Of all flowers
Methinks a Rose is best."

It is the queen of flowers, grows naturally in nearly all parts of the world, and has been a favourite from time immemorial among the civilised nations of Europe and Asia. It is cultivated in every garden—from that of the most humble cottager upwards—and we prize it more particularly because it is the floral emblem and pride of our country. When we meet to talk of the Rose it seems to draw our hearts together. It brings back fond memories of childhood, when we gathered the wild Dog Rose from the hedgerows. It takes us back to those happy days spent in the country, where we saw the perfect emblem of healthful rural life, the old Cabbage Rose, the pride of the cottager. It speaks of home when we think of the lovely Monthly China growing around the window, ready to peep in at the first burst of spring, and continue blooming until the frost comes, and it is not uncommon to see it in the month of December with its petals blushing through a veil of snow. It may well be called the "Queen of Flowers." Its soft, delicate, and rich colours with their lovely hues please the eye. Its delicious perfume and its perpetual blooming make it well worthy of the name. I will now give a few jottings of my own little experience of the last fifty years, with a few hints how to cultivate the Rose.

In 1840 I well remember our Rose Show. It was a very grand day with us. I was up very early in the morning, although very young, to help get the flowers ready. I well recollect the foreman opening the lid of the box and showing me the flowers that had been cut the night before. I can smell the delicious perfume even to this day—those fragrant summer Roses, the old Gallica or Provence, with here and there an old Red Moss or a Crested Moss—they were grand Roses then. It was a stand of twenty-four. We gained the first prize. In the stand we had Madame Hardy, a pure white Damask; Leda, or the Painted Damask, a lovely creamy white, edged with purple. Among the Chinas were Coutard, bright rose; Fulgens, fiery scarlet; Brennus, very large red; Blairi No. 1, delicate rose; "The Bourbons;" Du Bourg, pale blush, very fragrant; Madame Desprez, lilac rose; Gloire des Rosomanes, dazzling carmine; Blanche fleur, a double blush white; and the Noisette Jaune Desprez, Lamarque, and Aimée Vibert. We showed a stand of Climbing Roses in bunches, among which were the Banksian, white and yellow; the Old Ayrshire Blush, the Dundee Rambler, the Myrrh-scented, the Crimson Boursault, with others, the names I forget, as many of them are gone. It was a day. Several gardeners came to our house to dinner—good old custom—and the talk was all about Roses.

In the next five years, from 1841 to 1845, a very great improvement was made. It was in 1842 the London Horticultural Society offered prizes for Roses. A silver cup value £5 5s. for thirty-six Roses was given by Mr. Shears. In the winning stand we find Boule de Nanteuil, La Ville de Bruxelles, Duchess of Sutherland, Perpetual, and Blairi. About this time *Devoniensis* came out. It was raised in 1838—a genuine English Rose, not beaten at the present day. In 1843 came the Moss Celina; Kean, a splendid flower; Village Maid and Éillet Parfait, two lovely striped flowers. In 1844 Rivers introduced the Cloth of Gold. What a grand Rose! I recollect seeing a plant on a wall 20 feet high covering a large space in my uncle's nursery at Haverhill, with scores of flowers as large as teacups. It was a sight fit for the gods. In 1845 we had Madame Laffay, William Jesse, La Reine, Lady Alice Peel, Dr. Marx, Baronne Prevost, one of the finest autumnal bloomers we have at the present time; Comte d'Eu and Marquis Bonella, and that favourite *Souvenir de la Malmaison*. In Teas, Adam, Comte de Paris, Moire and Safrano.

From 1846 to 1850 the Hybrid Perpetual begins to take its place as a favourite, and bids fair to be the Rose. During this time some of the finest Teas of the present day were raised. *Niphetos*, *Souvenir d'un Ami*, and *Bougère* were three beauties. That superb glory, which caused such a great sensation, *Géant des Batailles*. From this the leading flowers of the present day came. Mr. Rivers introduced it from France. We had several dormants the first autumn it was sent out. In the spring they all grew, and we had some beautiful blooms in June, and well do I recollect the first flower with its rich dazzling scarlet crimson petals. Among the Bourbons were *Du Petit Thouars*, *Souchet*, and *Paul Joseph*, three rich dark crimsons. In summer Roses, *Madame Zoutman*, the new Persian Yellow, the richest yellow we have; *Paul Ricaut*, and *Beauty of Billiard*. In Noisettes, *Solfaterre* and *Ophirie*, both lovely in the bud; and the sweet Moss *Lanei*.

From 1851 to 1855.—Every season brings with it additions to those universal favourites the autumnals. From *La Reine* we get *Auguste Mie*, a beautiful glossy pink; also *Louise Peyronny*, a grand Rose. Mr. Geo. Paul sent out *Queen Victoria* from the same parent, and for perfection of form we had *William Griffiths*, also *Caroline de Sansal*, a delicate flesh. In 1852 Paul's *Prince Albert*, a rich dark crimson Bourbon; also *Vorace*, a thick petalled dark velvety crimson. It was about this time that *Madame Willermoz* and *Sombreuil*, two fine Teas, were raised.

In 1853 magnificent pot plants were exhibited by Messrs. Francis of Hertford, and Paul, Cheshunt. The grandest plant shown was *Devoniensis*

by the former. A Mr. Busby had a fine plant of *Géant des Batailles*, which was the admiration of all. Mr. Lane showed large specimens of *Coupe d'Hébé* and *Juno*, covered with bloom. *Madame de St. Joseph* was in good form. It was said at the time the queen of flowers had now taken the position to which she was entitled, and she still retains it.

It was 1854, the year we are indebted to most, the beautiful *Jules Margottin* first put in an appearance, followed by *Général Jacqueminot*, a grand flower, rich dark crimson; *Colonel de Rougemont*, *La Ville de St. Denis*, and *Madame Rivers* (loveliest of the lovely), topped up by the dear "Old Glory," *Gloire de Dijon*, now to be seen in every garden. 1855 gave us *Lord Raglan* and *Madame Vidot*.

From 1856 to 1860.—First on the list stands *Scouvenir d'Elise*. It was illustrated in the "Florist," September, 1856, and to my thinking is the best Rose we have—a lovely yellowish cream colour, with a rosy tint, very fragrant, with beautiful foliage. It has had the premier prize at the National more times than any other Rose. It was raised in Paris, and sent out by Mr. Chas. Noble of Bagshot. Mr. Rivers at the time thought the illustration by far too perfect. He was a good judge, but was wrong over this flower. I have cut several blooms within the last fortnight quite equal to the illustration. It stands now, after thirty-five years, as it did then—the "Rose of Roses."

In April, 1856, Reynolds Hole first suggested the idea of having a grand National Rose Show. It was taken up by Messrs. Rivers, Turner, Paul, and others. They held several meetings, and decided to hold the first National Show in St. James's Hall on the 1st July, 1858. £200 was raised by subscription, a good schedule was drawn up, prizes amounting to £156 were offered, and the Coldstream Band was engaged. The great day came. The entries were large. Half the nurseries of England poured their treasures into St. James's. Mr. Rivers sent a grand lot (twenty boxes) not for competition. Messrs. Paul & Son of Cheshunt were first. Messrs. Cranston, Cant, Francis, and Turner took prizes. Among the amateurs Revs. Reynolds Hole and R. Fellows; also Messrs. Fryer of Chatteris, and Walker of Oxford. It was a great success. The flowers that attracted most attention were *Prince Léon* and *Madame Vidot*. There was *Mathurin Regnier* and the lovely *Noisette Triomphe de Rennes* among the few new Roses that put in an appearance. The premier flower was *William Griffiths* in Cranston's stand. 1859 gave us *Lælia*, *Countess Cecile de Chabillant*, *Madame Boll*, *Gloire de Santenay*, *Senateur Vaisse*, *Baron Gonella* (a Bourbon), and *President* (a beautiful Tea). In 1860 the National was held at the Crystal Palace, St. James's not being large enough. It was a great success. Over 7000 blooms were staged. The new Roses were *Victor Verdier*, *Madame Crapelet*, *Céline Forestier*, and *Rubens*.

1861 to 1865.—During this period a still greater improvement is made. First and foremost stands in 1861 *Charles Lefebvre* (the king of all), with *Duc de Rohan*, *Mrs. Chas. Wood*, and *Prince Camille de Rohan*, followed in 1862 by *John Hopper*, a flower raised by *Robt. Ward*, an apprentice of our father's. This was a cross between *Jules Margottin* and the lovely *Cecile de Chabillant*, a Rose for every garden; also *Beauty of Waltham*. In 1863 came *Duchesse de Morny*, *Madame Victor Verdier* and *Marie Baumann* (a pair of the most perfect and lovely flowers), with *Pierre Notting*, making a grand quartette. In 1864 we had *Dr. Andry*, *Duchesse de Caylus*, the lovely *Marguerite de St. Amand*, *Mons. Boncenne* and *Xavier Olibo* (two rich dark velvety crimsons), and to enliven the lot that great favourite *Maréchal Niel*. Six grand Roses in one year. In 1865 that sterling flower *Alfred Colomb* appeared, with *Marie Rady*, *Fisher Holmes*, *Camille Bernardin*, and *Abel Grand* (a lovely pink). Surely this list of seventeen in five years, all first-rate flowers, must satisfy.

1866 to 1870.—Still they come; in 1867 *La France*, that lovely delicate pink, with its rich perfume. Then comes *Baronne de Rothschild*. What disappointment! A grand flower, but no scent. In 1868, *Adrienne Christophle*, one of the most charming Teas, and to go with it *Mr. Geo. Paul* gave us the grand *Duke of Edinburgh*, and for perfection of shape *Emilie Hausburg*. In 1869, to top the lot, came *Louis Van Houtte*, with *Marquise de Castellane* and *Comtesse d'Oxford*, a grand trio, with the *Tea Catherine Mermet*, one of the best, free growing, hardy, and prolific bloomer we have. It was in 1869 the Florists' Society held their Rose Show in the gardens of Mr. Foster, Brooklands. I took the first prize, silver cup, for twelve. It was a grand show, the best we have had in Cambridge. 1870 only brought one worthy of note, *Mad. Bérard*, a seedling from *Gloire de Dijon*.

(To be continued.)

THE EDIBLE STACHYS.

I AM utterly at a loss to understand why "A City Man" should have nursed up his wrath so long, and then poured it out on me on account of the short note I gave on this vegetable some time ago. I must own that I quoted incorrectly, it should have been "vegetable," not "winter," but the absurdity of the name consisted not in the adjective used, but in the name itself, "Whitcibait;" indeed, the absurdity of it seems to me to be increased by the use of the term "vegetable," for whenever this is used it is always, so far as I know, because it has some likeness either in appearance, texture, or taste to

that which it is said to be like. Thus we find the term Vegetable Oyster applied to the root of Salsafy, because by some it is supposed to taste like oysters. Again, we have the term Vegetable Ivory applied to the nut of *Phytalephas macrocarpa*, because in appearance and texture it bears so strong a resemblance to ivory as to be capable of being used for several purposes. Again, the *Stillingia sebifera* is called the Vegetable Tallow plant, because tallow is obtained from its seeds. In all these, and I might add some others, there are sufficient reasons why the term vegetable should be applied to them, but neither in appearance, texture, or taste has the *Stachys* the slightest resemblance to whitebait. My object was, after having grown it myself and obtained what information I could from the firm who introduced it, to warn people against being led away by the love of novelty to grow a thing which is not only absolutely worthless as a vegetable, but is a horrible weed in the garden. I forbear to notice the very childish remarks which close "A City Man's" notes. Such a system of interpretation might make words mean anything, reminding one of the statement of a learned scholar of the middle ages, who stated that because the phrase "abominable idolatries" occurred, that therefore there must be some idolatries which were not abominable.—D., *Deal*.

WEATHER EFFECTS ON CROPS.

IN our district the weather and its effects on vegetation have been of a most unusual character. During winter we were almost free from frost; yet except during the abnormally hard winters ten or a dozen years ago, no season has been productive of more mischief. We lost Violets, Sweet Williams, Pinks, Chrysanthemums, &c., many of them absolutely dead to a plant. Nor is this experience confined to one garden. It seems to have been general. The reason appears to be that the exceptionally mild moist weather completely spoiled plants for standing the slight frost which did occur. The season also showed how difficult it is to forecast the times of such a crop as Broccoli. Between a cold slow season and a quick season like that just past there would be a difference of quite six weeks in some midwinter sorts. Almost the whole of Snow's and Veitch's Spring White was cut before the end of December, and Sutton's Late Queen was over by the 12th of May, quite four weeks earlier than in a medium season.

Now as to the spring months, no doubt the remarkable feature has been the unprecedented amount of damage of which small birds have been the cause. They began by the end of January on Apricots, Plums, Peaches, and Pears, and continued without intermission until the beginning of May; the Gooseberry, Red and Black Currant, and Apple blossom have suffered greatly. I find opinions vary as to the particular birds in different localities, but no doubt bullfinches, chaffinches, and sparrows are the chief offenders. Raspberries and Cherries seem to have escaped their attention. Then during the period of the flowering of Plums and Pears the weather for three weeks was dull, cold, or close. There was little pollen, and hardly any fruit set. The loss to big growers of Tomatoes solely on this account must be considerable. Plants have set at the bottom then a piece of barrenness, and lately, beyond this, the setting process is again being proceeded with. Much the same peculiarity has been exhibited with Muscat Grapes. Early bunches are well set, as also later ones, but the bunches which flower during the time of evil are practically bare skeletons. Rain is wanted badly for the Strawberry crop, which is very promising. Apples also would set much better with a little more moisture, but these and Cherries are almost sure to set well. Apricots set a large crop.—B.

ROYAL NATIONAL TULIP SOCIETY.

THE Exhibition of the above Society, which took place in the Botanical Gardens, Old Trafford, on the 28th ult. (the last day of the great Whitsun Exhibition of the Manchester Botanical and Horticultural Society), proved a success far beyond the most hopeful anticipations of the Committee. It is true that exhibitors in the south, like Mr. James Thurston of Cardiff, could take to Manchester only the remains of his Tulip blooms, in common with Mr. T. Haynes of Warwick; while Mr. Samuel Barlow, of Stakehill House, Castleton, required another week to bring his flowers to perfection. But the fixture suited the Cheshire and the great body of the Lancashire growers of Tulips exactly, and very large numbers of fine flowers were staged in the best condition—in fact, it was said to have been one of the largest and best exhibitions seen in Manchester for many years. The flowers were staged in the end portion of the spacious Concert Hall, and double the space of table room originally provided was covered with flowers. The visitors to the Manchester Society's Show, who also enjoyed the privilege of seeing the Tulips, appeared to wonder at the difference between feathered and flamed flowers; between bizarres, roses, and byblœmens; and especially between the self-coloured and shaded breeders, and the rectified flowers. Many lovers of flowers are unaware that a seedling Tulip at the first time of blooming almost invariably takes on a self-coloured or breeder form, and in this state they are technically termed "breeders;" and season after season as they are grown, now one and now another, in no order of rank or age, will rectify or break, as it is called, into either flamed or feathered flowers, or at some attempt at either. Those who grow Tulips can easily distinguish between a bizarre, a rose, or a byblœmen breeder. A bizarre breeder has a yellow base, and the marking or colour is laid on in black or red, or many shades of

brown and brownish red, and some are nearly yellow. A rose breeder has a white ground marked with rose, red, or scarlet, or some intermediate shade of these, and many of them are very beautiful. A byblœmen breeder has also a white ground, and in these the colour varies from light lilac to blue and violet, and some are almost black. A feathered flower when broken or rectified has the colour laid on as pencillings only round the petal edges, or in the case of a flamed flower this pencilling is joined by bold beams of colour that rise like fire flashes up the petal centre, and strike into the pencilled edges. Many beautiful breeders break into sadly degenerated forms; some dull coloured and ugly breeders into correct and finely formed blossoms.

More than ordinary interest attached to this exhibition from the fact that the Trustees of the Turner Memorial Fund offered special prizes for Tulips in two classes. The first was for twelve dissimilar Tulips, to consist of six rectified and six breeder varieties. This was won by Mr. Samuel Barlow, J.P., Stakehill House, Castleton, Manchester, with a very even and bright fresh lot of medium-sized flowers, consisting of bizarres William Wilson, feathered; and Sir J. Paxton, flamed; roses, Modesty, feathered; and Mabel, flamed; byblœmens, Duchess of Sutherland (Walker), flamed; and John Parkinson, feathered; breeders, bizarre, Sir J. Paxton and Hepworth's 27A; roses, Annie McGregor, of a beautiful bright rosy scarlet colour; and Mrs. Barlow; byblœmens, Glory of Stakehill and William Parkinson. Second, Mr. J. H. Wood, Royton, with bizarre, Masterpiece, feathered; and Mrs. Lomax, flamed; byblœmens, Adonis, feathered; and Talisman, flamed; breeders, bizarre, Sir J. Paxton and Lord Delamere; byblœmens, Storer's A12, feathered; and Alice Grey, flamed; roses, Annie McGregor, feathered; and Miss Burdett Coutts, flamed. Third, Mr. W. Kitchen, Stockport. The other class was for six dissimilar seedling Tulips, three rectified and three breeders, and here again Mr. S. Barlow was first with bizarre, Gill's seedling, feathered; byblœmens, Johnson's Bob Morley, flamed; and rose, Hardy's Miss Hardy, flamed; of breeders one of each class, all seedlings raised by the late Mr. John Hepworth. Mr. James Thurston, Richmond Road, Cardiff, was second with bizarre, feathered; byblœmens, flamed, and rose flamed, and two bizarre and one byblœmen breeders; all his own seedlings. One stand was disqualified from having two byblœmen breeders the Judges regarded as not distinct.

The leading class, the cup class as it is termed, was for twelve dissimilar Tulips, two feathered and two flamed of each class. There were six competitors, and Mr. James Knowles, Staleybridge, was placed first with a very good stand of well-marked, full-sized flowers, consisting of bizarre Sovereign and Sir J. Paxton, feathered; Sir J. Paxton and Dr. Hardy, flamed; roses, Heroine and Modesty, feathered; May Tints and Triomphe Royale, flamed; byblœmen Amazon and Talisman, flamed; Mrs. Hepworth and Conersby Castle, feathered. Second, Mr. W. Kitchen, with a good lot of flowers also, having bizarre Masterpiece and Typo, feathered; San Josef and Typo, flamed; roses, Minerva and Comte de Vergennes, feathered; Mabel and Queen Henrietta, flamed; byblœmen Violet Amiable and Trip to Stockport, feathered; Adonis and seedling, flamed. Third, Mr. S. Barlow; and fourth Mr. J. H. Wood. In the class for six dissimilar Tulips, one feathered and one flamed of each class, out of eleven competitors Mr. Daniel Woolley, Stockport, was first with bizarre Typo, feathered, and Sir J. Paxton, flamed; roses, Mabel feathered, and Olivia, flamed; byblœmen King of the Universe, feathered, and Walker's Duchess of Sutherland, flamed. Second Mr. W. Kitchen, with bizarre Paul Pry, feathered, and San Josef, flamed; roses, Comte de Vergennes feathered, and Clio flamed. Third, Mr. A. Moorhouse. Fourth, Mr. T. Haynes, Warwick. Then followed a class for the same number of Tulips, but the competition was limited to half-guinea subscribers, and there were four competitors. Here Mr. H. Housley was first with bizarre Lord Lilford, feathered, and Sir J. Paxton, flamed; roses, Alice, feathered, and Annie McGregor, flamed; byblœmen Agnes, feathered, and Lord Denman, flamed. Second, Mr. R. Wolfenden, Royton, with bizarre Masterpiece, feathered, and Sir J. Paxton, flamed; roses Heroine, feathered, and Mabel, flamed; byblœmen Talisman, feathered, and Duchess of Sutherland, flamed. Third, Mr. W. Prescott, Lowton. Fourth, Mr. S. Johnson, Stamford.

In the class for three feathered Tulips there were ten entries, and here Mr. S. Barlow was first with bizarre Sir J. Paxton, rose Annie McGregor, byblœmen Violet Amiable. Second, Mr. James Knowles, with bizarre Storer's Seedling, rose Industry, and byblœmen Conersby Castle. Third, Mr. R. Wolfenden. Fourth, Mr. W. Dymock, Stockport. There were seventeen stands of three flamed Tulips, the flamed flowers being always in excess of the feathered. Here Mr. H. Housley was first with bizarre Sir J. Paxton, rose Annie-McGregor, byblœmen Lord Denman. Second, Mr. Thos. Holden, Royton, with bizarre Sir J. Paxton, rose unknown, and byblœmen Lord Denman. Third, Mr. A. Moorhouse. Fourth, Mr. Thomas Haynes. There were sixteen exhibitors in the class for two Tulips, one feathered and one flamed, Mr. J. H. Wood being first with bizarre Masterpiece feathered, and bizarre Sir J. Paxton flamed. Second, Mr. W. Prescott, with bizarre Lord Lilford feathered, and Sir J. Paxton flamed. Third, Mr. H. Housley. There was a similar class for maiden growers, a maiden grower being defined as one who had not at any one show won the amount of his subscription. Out of three competitors Mr. John Hayes was first with unnamed bizarres. Second, Mr. Saml. Johnson, Stamford, with bizarre Sir J. Paxton flamed, and byblœmen Lord Frederick Cavendish feathered. Third, Messrs. Stuart and Mein, nurserymen, Kelso.

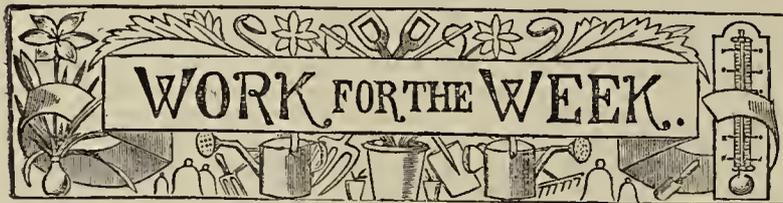
Single blooms were very numerous shown, and the Judges were engaged for a considerable time in making their awards. Bizarre feathered—first, Mr. B. Simonite, Sheffield, with Masterpiece; second

Mr. H. Housley, with Lord Lilford; third, Mr. T. Haynes, with Sir J. Paxton; fourth, Mr. J. H. Wood, with Masterpiece. Bizarre flamed—First, Mr. H. Housley, with Sir J. Paxton; second, Mr. D. Woolley, with the same; third, Messrs. Stuart & Mein, with Dr. Hardy; and fourth, Mr. R. Wolfenden, with the same. Roses feathered—First and fourth, Mr. John Hayes, with Industry; second, Mr. W. Kitchen, with Comte de Vergennes; third, Mr. H. Housley, with Alice. Roses flamed—First, Mr. Kitchen, with Mabel, second with Madame de St. Arnaud, third with Aglaia, and fourth with Mabel. Bybloemen feathered—First, Mr. W. Dymock, with King of the Universe, and second with a seedling; third, Mr. H. Housley, with Violet Amiable; and fourth, Mr. W. Kitchen, with Adonis. Bybloemen flamed—First, Messrs. Stuart and Mein, with Talisman; second, Mr. D. Woolley, with the same; third, Mr. W. Kitchen, with King of the Universe, and fourth with Adonis.

Breeder Tulips were very largely shown, and they were singularly beautiful. There were five collections of six breeders, two of each class. Mr. A. Moorhouse was first with bizarres Dr. Hardy and Sir J. Paxton; roses Miss Hindley and Mrs. Barlow; bybloemens Leach's Seedling and Queen of May. These were very fine. Second, Mr. S. Barlow, with bizarres Hepworth's 27A and Sir J. Paxton; roses Annie McGregor and Miss B. Coutts; bybloemens William Parkinson and Miss B. Coutts. There were fifteen competitors in the class for three breeder Tulips, and here Mr. J. Cliffe, Nesbitt Hall, Leeds, was first with very fine blooms of bizarre Hardwick's No. 28, rose Queen of England, and bybloemen Parker's King. Second, Mr. W. Kitchen, with bizarre Sir J. Paxton, rose Rose Hill, and bybloemen seedling. Third, Mr. H. Houseley.

Single blooms of breeder Tulips were also very numerous, and the awards were as follows:—Bizarres: First, Mr. H. Houseley with Dr. Hardy; second, Mr. A. Moorhouse with Sir J. Paxton; third, Mr. H. Houseley with Dr. Hardy; fourth, Mr. S. Barlow with Richard Yates. Rose breeders.—First, Mr. W. Kitchen with Rose Hill; second, with the same; and third, with Annie McGregor; fourth, Mr. A. Moorhouse with Mrs. Barlow. Bybloemen breeders.—First, Mr. T. Haynes with Glory of Stakehill; second, Mr. A. Moorhouse with Unknown; third, Mr. S. Barlow with Glory of Stakehill; and fourth, with John Henry.

The premier flamed Tulip was bizarre Sir Joseph Paxton, from Mr. D. Woolley; the premier feathered Tulip was bizarre Masterpiece, from Mr. B. Simonite; and the premier breeder bizarre Sir J. Paxton, from Mr. A. Moorhouse.



FRUIT FORCING.

FIGS.—*Ripening.*—Perfect fruit can only be had by keeping it free from damp during the ripening process, affording a free circulation of dry warm air. Maintain the night temperature at 65° to 70°, by day at 75° to 80°, and with sun heat 80° to 90°. There is no comparison between Figs ripened in a close, moist atmosphere and in shade, and those in full exposure. It is necessary to afford a circulation of air constantly. If red spider become troublesome during the ripening it is a good plan to gather all the fruit about ripe, or sufficiently so for its being effected with the fruit in an airy fruit room, and then give the trees a forcible syringing, directing the water against the under side of the leaves so as to dislodge the pest, and clear water being used and air admitted rather freely it will not interfere with the ripening of the fruit remaining, and by pursuing this process the pest may be kept from increasing very much until the fruit is gathered, when it may be destroyed by sponging or otherwise, applying an insecticide.

Second Crops.—Generous treatment is essential to ensure the second crop of fruit swelling satisfactorily, syringing twice a day to keep red spider in check, and affording liquid manure when watering is necessary, trees in pots requiring it daily, and those in borders once or twice a week according to the vigour of the trees and extent of the rooting area, trees in borders of limited extent requiring it more frequently than those with the roots less restricted. The second crop must be thinned where thickly set before the Figs are the size of Walnuts, and in thinning reserve the larger fruits at the base of the shoots.

Young Trees for Next Season's Forcing in Pots.—Those coming on for early forcing must not on any account be neglected, or they will disappoint the grower. They must have all the light possible, and not be at a greater distance from the glass than is necessary for their growth, keeping them well syringed and supplied with liquid manure so as to secure a sturdy growth, and when the growth is complete they may be placed outdoors in a sunny corner to rest, but they must have the wood thoroughly ripened, as all fruit trees, especially those for very early bearing, require to have the wood matured early.

VINES.—*Early Houses.*—Where houses have been cleared of ripe fruit the foliage of the Vines should be cleansed of dust and red spider, employing tepid water, and if necessary an insecticide. On no account allow the borders to become dry, but afford water to the inside borders as necessary to maintain the soil in a moist condition, keeping the foliage clean and healthy to the last, that it may aid in the proper development of the fruit buds for another year's crop. The leaves being

fresh and clean keep the laterals in check by pinching, yet if there be anything defective with the principal foliage a little more freedom may be allowed to the principal laterals.

Houses with Fruit Swelling.—Maintain a warm genial condition of the atmosphere, damping the floors and borders two or three times a day, especially at closing time, and again before nightfall. Although fires cannot be dispensed with at night much may be done in economising fuel by closing early on fine afternoons, but it must be accompanied by plenty of atmospheric moisture. Do not allow the laterals to grow so as to crowd the principal leaves, but keep them well in hand, although where there is plenty of space they may be allowed to extend, yet not so as to necessitate their removal in great quantity later on.

Houses with the Fruit Ripening.—Allow a constant and liberal supply of warm rather dry air, and do not neglect to afford a good watering, and if a slight mulching of short lumpy litter be applied it will tend to a more equable moisture at the roots. A moderate amount of air moisture must be accorded for the benefit of the foliage, but it must not be stagnant or it will prejudice the ripening, and without a good heat it is not possible to insure the highest quality. Indeed, there is no comparison between Grapes that are ripened in good heat and those finished in a low temperature.

Grapes Scalding.—Muscats and Lady Downe's completing the stoning must be watched in hot bright weather, and in case of scalding air must be admitted more freely for a fortnight or until colouring commences, when all danger will be over. Hamburgs, too, sometimes scald, which can mostly be avoided in their case by a good spread of foliage, and remedied by a bountiful supply of air by day, a little ventilation constantly at the upper part of the house, and a genial warmth in the hot-water pipes.

Late Houses.—Late varieties of Grapes in flower must have a constant circulation of dry warm air, and a temperature of 70° to 75° at night, rising to 85° or 90° with sun heat, or without this the kinds that require some time to ripen do not set well, which more especially applies to the thick skinned varieties. Thin the berries freely as soon as they are set, but this, in the case of the shy setters, must be confined to the removal of the smallest and imperfect berries in the first instance, deferring the general thinning until the properly fertilised berries can be determined by their free swelling. There must not be any deficiency of moisture at the roots, therefore afford liquid manure copiously after the Grapes are thinned and swelling, or a top-dressing may be given of some approved artificial manure, distributing it evenly over the surface, and work it in with tepid water. Outside borders, if the weather be dry and the soil light, should be well watered, employing liquid manure at a temperature of 85° to 90° if the Vines are carrying a full crop and are not very strong.

Vines in Pots for Next Year's Fruiting.—These should have the leading shoot or cane stopped at 8 to 9 feet, and the laterals or sub-laterals stopped at one leaf as produced. Supernumeraries in recently planted houses should also have the leading shoots pinched at the length indicated for pot Vines—that is, those intended to fruit next season, the laterals and sub-laterals being closely pinched, but the permanent canes may be allowed to make all the growth possible, as well as pot Vines not intended to fruit next season. Young Vines, after they become established, should be encouraged with plenty of water at the roots and abundant atmospheric moisture, closing the house early on fine afternoons, so as to husband sun heat and save fuel.

CHERRY HOUSE.—When the whole crop is perfectly ripe the chief consideration will be to prolong the season to preserve them fresh. Shading will do so, but it is only desirable when the fruit is exposed directly to the sun, owing to the limited foliage. Free ventilation must be attended to, and in hot weather a sprinkling of the surface of the border in the hottest part of the day will assist in keeping the fruit plump. The roots must not be neglected in the supply of water, for dryness is inimical to the development of the buds for the ensuing crop of fruit.

KITCHEN GARDEN.

BRUSSELS SPROUTS.—These require about six months to perfect themselves, and to have the sprouts plentiful and fully developed in November the plants should be placed out in June. They succeed best in a somewhat heavy soil containing a good quantity of manure. If planted at a distance of 2 feet each way they will gain their full size, and be so hardy as not to be checked or injured by any severe weather that may occur in winter. They are most valuable for winter, remaining good and in season from October till April. Of late years some large sprouting sorts have been introduced, but for general usefulness they are much behind the small hard sprouting sorts, and the only variety we are growing this year is the old Dalkeith.

BROCCOLI.—Plants are strong, and the majority should be placed out in June, but July plants often prove serviceable too. Place out the largest plants first, and if space is deficient, and it is intended to plant more out when the early Potatoes and other crops are taken up, do not allow those in the seed beds to become crowded and drawn in the meantime, but take them up and replant them at a few inches apart in good soil to remain there till their permanent quarters are vacant. Keep them the same distance apart as the Brussels Sprouts, and plant them deeply, as they suffer less from drought than if planted near the surface.

LATE CAULIFLOWER.—Only one variety is grown by us, and that is Veitch's Autumn Giant. It is so well known as a good late Cauliflower and an indispensable variety, that it is almost superfluous to advocate its culture. It should be planted in June to give a supply in September

October, and November. It does best in a heavy soil only moderately rich, as when very rich it makes such huge heads that they are liable to be ordered out of the kitchen. We generally plant from 20 inches to 2 feet apart, as we prefer to let the plants become somewhat crowded, and thereby of restricted growths to form medium sized heads.

WORMS DESTROYING CAULIFLOWER.—Few vegetables suffer more from worms at the root than Cauliflower. Their injurious operations are soon indicated by the plants becoming yellow in the foliage, and then withering altogether. This sometimes occurs when the plants are just beginning to become established after being placed out. At other times the heads are almost beginning to form, and a quarter will soon become patchy in this way. The best preventive is to fork a quantity of lime into the soil immediately before planting. We did this last year, and amongst some thousands of plants not one failed, and as the Cauliflowers are planted on fresh ground this season the liming has again been done most carefully.

DRUMHEAD CABBAGE.—Where many late autumn vegetables are in demand for the servants' hall or elsewhere, the Drumhead Cabbage will be found most useful. The miniature variety is of choicer quality than the Drumhead. The former should be grown for the kitchen, and if planted in June they will head and prove most useful in October and November. The miniature Drumhead may be grown at a distance of 18 inches apart.

TOMATOES IN THE OPEN AIR.—Tomatoes may now be planted in the open air in all localities. Do not fail to place them in a sunny position, they will not succeed in any other. Place a little mound of moderately rich soil above the level of the surrounding ground where each plant is to be inserted. Plant in this, make the soil as firm as possible, water thoroughly, and tie up and train as soon as necessary. This is important, because many plants are put out and allowed to grow and run wild before training is taken in hand, when it is too late to insure proper growth and fertility. It is astonishing how soon the plants get into flower and fruit when the superfluous leaves and growths are removed as quickly as they form, and each one is confined to a single stem. This is regarded as the main secret of securing a good crop of Tomatoes in the open air.

ONIONS.—The seed of these has been more variable than any of our other crops. Sown side by side, some have germinated freely and grown well, while others have been almost a failure. Spring sown Onions may be very successfully transplanted, and we have transplanted thousands of them in former years, and although these did not gain the large size of the others, they became serviceable bulbs, and deficient crops may be increased in this way.

ASPARAGUS.—Although we have cut from the same roots for ten years the produce was never finer than it has been of late, and we attribute this to the extra free dressings of guano applied to the surface of the beds during March. We have noticed that when every head is cut and only a few weakly ones allowed to remain to form the plant a deterioration occurs, and a weakly crop follows next year, and whatever the anxiety to secure it may be the future success of the plant should not be forgotten, and three or four good strong stems must be allowed to remain for the following season. As a rule cutting Asparagus should cease the first week in June.

LETTUCE may be planted in a cool partially shaded place at this time. Sow a little seed once a fortnight. Sow a little seed of the Moss Curled Endive. It will not be in great demand when this is ready, but a few may be acceptable. Should Kidney Beans, Dwarfs or Runners, have come up in a crowd thin them to a few inches apart, as they fruit earlier and bear finer pods than when crowded.

THE BEE-KEEPER.

NOTES ON BEES.

THE WEATHER.

The weather is much cooler again, and bees are less abroad. May swarms were never more numerous, and all unswarmed ones are ready for supering, but this will not be performed till the middle of June.

OILCLOTHS.

These are made by steeping good calico in boiled linseed oil, and now is the best time to prepare them. For the crown squares are best, having a large eyelet in each corner. Each costs about 7d., and as they are lasting are perhaps as cheap or cheaper than anything else; they are effectually watertight. For covering the sides pieces 6 feet long are necessary, and eyelets in them, too, will be found useful. These should not cost more than 9d. or 10d. each, and are superior to felt, and in a commercial point of view much cheaper and more effective than double walled hives. Their lightness, pliability, and durability alone recommend them, and where bees have to be moved about, such as to the Heather, they are indispensable.

PUNIC BEES.

My Punic stocks, although the weakest in the autumn and early spring, are now nearly as well advanced as my best stocks of

Carniolians and crossed Cyprian and Syrian races. A few weeks will determine their honey gathering qualities, their breeding, and hardiness being proved a success. After the honey season commences I will weigh a number of them frequently and let the result be known.

SUPERING

In early districts should not be delayed, neither should feeding be neglected now if honey is not to be had. It is a critical time for several weeks to come, and neglect to feed may render hives unprofitable. Be watchful.

DANDELION HONEY.

Much of the honey gathered this year is from the Dandelions, which is rather pungent, and is apt to spoil the delicacy of fruit blossom or Clover honey, hence my reason for advising returning to the bees any combs having too pungent honey.

BLENDING HONEY

This, in some cases, may improve an inferior sort, but I have not experienced an improvement by mixing in any fine grade. Most people are apt to judge by their own standard, disallowing the opinions of others with perhaps a great deal more experience. It is a well-known fact that Borgne has been long famed for the flavour of its honey, although I am quite of the opinion that similarly flavoured honey may be had eastward on the same seaboard. Many years ago I sent samples of some of these honeys to London merchants, and they pronounced it the finest flavoured honey they ever tasted, and at all our principal shows the Kirkcudbrightshire and Dumfriesshire drift honey in most cases was awarded the premier honours, and special reference was made to that of Mr. Sydney Roebuck, who also excelled in his lettering designs; nothing had ever approached their sharpness in angle, and otherwise well executed designs.

In order to test the blending and the cause of the fine flavour in Borgne honey A. MacNaughtt, Esq., Greenock, offered a prize two years ago for the best essay upon the subject, but the essay elicited nothing beyond the fact that it was from deeply rooted Clover amongst the rocks, which did not establish anything out of the common.

I have discovered a honey at times in my own apiary not unlike the Borgne honey gathered from the *Genista tinctoria*, a plant which yields much honey, and is plentiful in Borgne. I will not urge that this plant may be the cause, but it will be well if bee-keepers turn their attention to this matter and of blending honey. Our contemporaries ridiculed the idea, and many showed their disapprobation of the gentleman's prize named. Now, this is perhaps natural to some condemning the good motives of others, but the prize was offered for the sole purpose of benefiting bee-keepers. If it had been made out that blending was the cause of the flavour then surely a problem would be solved, and a lasting benefit to bee-keepers and consumers would accrue; or, if on the other hand, Borgne in her geological formations or her floral gifts was the cause, then by all means let her bee-keepers reap the reward. Mr. MacNaughtt has met with much opposition, but his purposes are generous and will in the future bear fruit. It is not a one-sided thing, but affects both the consumer and the bee-keeper, the latter in the end reaping the richest reward.

I have often directed the attention of bee-keepers to the way to handle their honey, or rather how not to handle it, so as to gain confidence with the consumer. Fruit in some cases can be pared, but honey has to be eaten in its entirety whatever hands it may have passed through. One of our modern bee books advises hanging the honey while in the strainer "before the fire," and adds, "The comb can be crushed by the fingers whilst in the bag." I trust bee-keepers will not take the advice, and if the Fruiterers' Company ever take the question of bee-keeping up on behalf of cottagers and others, as they have exerted themselves with the fruit question, they will do so on lines of their own, and in a generous, just, and independent spirit. Bees and flowers for the country, and fruit and honey for all, might be a good motto.

THE RAIT HONEY PRESS AGAIN.

I think I may say without fear of contradiction, and that they are in the minority who may differ from me when I say that truth and a truthful representation of all a man has to do with is one of the noblest traits in his character, and one of the greatest virtues he can possess. It is what gilds the volume, and adds lustre, beauty, and worth to it and the writer, and gives confidence to the reader, who stores its treasures, and imparts again to another channel, and raises the knowledge to a higher field of usefulness. The time is not long since I had to call the Editor of "B— B— J—" to order for misstatements regarding the honey presser, in which I disclaimed being inventor of the honey screw press, but which he

printed the opposite, suppressing the facts as subsequently and lately appeared in these pages. This statement of the Editor, who is alone responsible, has provoked a letter from W. P. Meadows, Syston, near Leicester, of which the following is a copy:—

"I notice in your paragraph *re* above, on page 60 of the Journal, you are called upon to make a correction which is practically unnecessary. For ages past a press similar to Mr. Thomson's has been in use for various chemical and household purposes, fruit, &c. Our late lamented friend Raitt invented the only press ever made with a horizontal screw, so as to expel honey from cells in a sideways manner, without the necessity of mashing wax, &c., up, and driving honey through it. In the Raitt press the container is made the size of the comb, and honey from both sides comes out as screw is actuated. In the other only one side of comb comes in contact with perforations, the honey on other side having to be driven through midrib, and all mashed together before honey is expelled."

The above letter must have been written in ignorance of the presser in question. Mr. Meadows' closing remarks are not true, promulgated at first by his "late lamented friend Raitt," and perpetuated by his colleague. But for the Lanarkshire honey presser the Raitt one never would have been invented. It is not true that the Raitt honey press is the only one having a horizontal screw, nor is there a word of truth in "the honey having to pass from one side through the midrib to the other." It has thousands of perforations for every one in the Raitt one, and has exit all round and at the bottom, and so little refuse comes away with the pressure that I have repeatedly witnessed not more than an ounce from 100 lbs. of pure honey. Nor is it true that presses "similar to Mr. Thomson's have been in existence for ages."

It is needless discussing the question further with one so palpably ignorant of facts, or with editors who seem to rejoice at printing errors, and refusing their refutation by facts, but as the question is a burning and important one for bee-keepers, silence on my part would be recognising the views of ignorance and the misstatements it advances. I have not, like some dealers, any interest in appliances, further than assisting bee-keepers to put upon the market honey of a superior quality and more cleanly than much that is put upon it. We all want the best, and surely if the Raitt presser was what is contended for it we would not require to seek further. Mr. Webster, who appears to have some experience in the matter, says of the Raitt honey presser.—"The honey coming from these appliances is very clouded with the small particles of wax broken off by the pressure."

Had the Editor printed my letter, or printed only facts, this article would have been unnecessary, but I hope bee-keepers will in their own interest ponder the facts, and follow the instructions based upon experience.

JOINING SWARMS.

"Your correspondent, 'Lanarkshire Bee-keeper,' in replying to my questions respecting the transfer of bees from straw hives into Lanarkshire hives, does not say what I am to do with the queens of the second swarm and driven bees, both of which I wish to join to the first swarm. How are the bees driven from the straw skep into the frame hive, and how many divisions will the three require? When should supers be placed on?—J. D. L., *Northumberland*."

I observe an error at page 332, "queens" instead of "queen" being used. Queens to the number of twelve or even more sometimes accompany after swarms, which causes the swarm to be restless and not unseldom to fly away after being hived. When more than one is observed they should be killed, preserving the handsomest one. Often, however, only one goes with the swarm.

There is a great risk in joining two unequal sized swarms even after every precaution of having both gorged with honey, the key to success. I have often witnessed the put on swarm disappear altogether. After the bees empty their stomachs they appear to detect strangers, then at dusk when unsuspected the onslaught begins. The bees leave the hive in a wounded state, and cannot return, and are never seen. Far better to wait until you have more bees and more experience before joining. Second swarms and old stocks are preserved here principally because of the youthfulness of the queens for the next year's stocks and for late work this year, which is as important as performing the operation mentioned, which is not unlike "killing the goose."

If, however, you are determined to unite them after the second swarm is hived in the third box place it close to the swarm, and examine it frequently until you are satisfied she is laying, then depose the queen of the first swarm, let it remain so for eight days, carefully examine every frame, and be certain that every royal cell is excised. Next day sprinkle both with very thin syrup, so as not to clog the bees in any way, then place the second swarm bodily upon the top of the first swarm; or if you choose, and do not grudge the trouble, mix the frames in all the divisions, alternating the frames,

and do not join until the bees are full, but no later, as this is important to success. The bees of the old stock should have her queen destroyed and placed upon the first swarm before uniting the second one. Dividing causes the bees to stay in a new location.

To drive the bees from the straw hive, invert it, steadying it in some way most suitable, then lay the frame hive upon it, beating the while to cause the bees to retreat to their own hive; the bees fly from the tapped side, so arrange the frame hive that the bees, where most crowded, will enter it readily. Three lots of bees may have three divisions, but unless the queen be crowded out of the two you might give an additional super at the time honey is beginning to be plentiful, when Beans, Clover, and Sainfoin are in bloom.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

William Bull, 536, King's Road, Chelsea.—*Catalogue of New Plants and Orchids (illustrated)*.

J. Carter & Co., 237 and 238, High Holborn.—*List of Florists' Flowers and Hardy Plants*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (R. C. N.).—For "Fruit Culture Under Glass" procure Mr. Thomson's book bearing that title, published by Messrs. Blackwood and Sons; for out-of-door fruit culture Mr. Wright's gold medal essay, published at this office, will be found useful. Mr. B. S. Williams' "Orchid Growers' Manual," or Mr. L. Castle's treatise on "Orchids" will meet your requirements. (C. B. B.).—We do not know a book specially devoted to the subject you name.

Malformed Cucumber (R. F.).—It is an example of fasciation taking place between the fruit stem and leafstalks, and no doubt it has been occasioned by the stem fracture to which you refer. If any more malformed fruits appear the best plan would be to remove them at once, as they are not likely to develop into good specimens.

Blistered Peach Leaves (W. F. K.).—The leaves are attacked by a fungus (*Ascomyces deformans*), and is usually most prevalent after the trees have sustained a check by a chill during inclement weather. We have often seen it on leaves that have been exposed to cold currents of air through front ventilators in houses when the growths above have been perfectly free. Shelter, not from east winds alone, but from cold southerly winds, is very desirable in spring for trees that are prone to have their leaves blistered, and dressing the trees in winter with sulphur rendered adherent by clay is considered prudent by some cultivators.

Sulphate of Ammonia for Vines (T. Y.).—As the Vines make strong growth and large leaves we should hesitate in using this fertiliser alone, as its tendency is to promote luxuriant growth at the expense of flowers and fruit. This is counteracted when the soil also contains the mineral requisites for Vines—namely, potash and lime. The small loose bunches of fruit which you say the strong growing Vines bear, rather indicate a lack of mineral constituents than of nitrogeous matter, and a mixture of two parts superphosphate of lime and one part sulphate of ammonia, mixed and applied at the rate of 2 ozs. to each square yard of surface of the border, would be better than the latter alone. A multitude of fibrous roots freely working in firm good loam are of the utmost importance in Vine culture, and no artificial manures whatever can compensate for their absence.

Insects on Tomatoes (Idem).—The small white insects (*Aleyrodes*) are injurious. You have done right in removing the leaves on which you find eggs, and you may destroy many of the insects by fumigating, shaking the plants at the same time and keeping the floor wet, on which the insects will fall and not readily take wing again.

Cabbages and Lettuces for Market (Reader).—Most of the chief London market gardeners save their own seeds from selected varieties of vegetables. Ellam's Early is one of the first Cabbages for use, and grown about 15 inches apart, and first in the market, the crop is profitable. The true Enfield Market is good for the purpose, and Early Etampes well worth trying. The Brown or Bath Cos and the Hardy Hammersmith Cabbage variety are mainly relied on for standing the winter. The most important and profitable crop is raised by sowing seed of a good variety of the Paris White Cos in frames towards the end of October or early in November, growing the plants thinly, transplanting 2 or 3 inches apart under sashes or other coverings, and finally planting as soon as the weather permits in the spring. Some care is needed in management, overwatering and overcrowding in winter being fatal to success.

Lawn Tennis Ground (R. B.).—In reply to the question of a correspondent Mr. R. Inglis wrote as follows some time ago in the Journal:—"The regulation size of tennis courts is 78 feet by 36 feet. Outside this there should be at least a yard all round, but better if it is two—namely, 85 feet by 42 feet of level lawn. Tennis lawns are generally made quite level, which I think is a mistake, especially if the soil is of a stiff moist nature. It is much better if the ground is kept a little higher in the centre, say 4 or 5 inches, so that when a heavy rain occurs much of it passes off to the sides and ends, and the ground is quicker dry and fit to play upon sooner than when made perfectly level, and the greater part of the rain having sunk into the ground. It is very essential to have a firm surface; and for this reason, where the soil is clay or is wet it is a good plan, after having levelled and consolidated the ground, to spread about an inch of clean coal ashes over it before laying down the turf. In addition to this it should be previously well drained. On light dry soils less trouble is necessary to have a fair tennis lawn; indeed, it may be played for 'home practice' on any lawn where there is a little less room than is required for full-sized courts, and although it is not quite level."

Nectarine Leaves Skeletonised (S. R. M.).—The injury to the foliage is neither caused by insects nor fungus, but is the result of defective root-action or a deficiency of food for maintaining the trees in a healthy state. Of this we have no doubt whatever, and if you lift the roots and place them in fresh loam with a mixture of calcareous matter, and at the same time accord the trees otherwise good management, they will produce very different foliage, stouter and greener, that will resist the effects of the sun. The transparent patches in the leaves show a deficiency of chlorophyll. There is, indeed, little or no substance there, and those weak parts shrivel and drop out. We have only once before seen a similar case, and the trees were completely restored by the means above indicated. If there is no fruit on the trees you may lift them at once, and keep the foliage fresh by syringing and shading until new roots form and take possession of the fresh soil; or the lifting may be done immediately the crop is gathered. If it must be postponed, the best thing you can do in the meantime is to apply liquid manure copiously to the roots, ventilate early in the morning, and in very hot weather shade the foliage slightly either by spreading netting on the glass or sprinkling it with limewash applied with a syringe. The trees have probably been overcropped. They are certainly in an enfeebled state, and urgently need renovation. An abundance of fresh roots working freely in good soil will have a magical effect, and if you can carry out our suggestions this summer you will probably have healthy trees next year.

Mildew on Grapes (G. T.).—We are sorry to see the fruit so seriously infested. Judging by the wood and foliage the Vines appear to have been well managed; yet we suspect the house has been kept closed too long on some particular morning, and the atmosphere too moist. There is nothing that can destroy the mildew without some "marks" being left, because the mildew itself injures the cuticle of the fruit. You say you have tried Fir-tree oil and sulphur without good effect. Have you tried Ewing's mildew composition? The following preparation has been found effectual in destroying mildew on Peach trees and Roses, but we have not tried it on Grapes. You might try it on a bunch or two in varying strengths and favour us with the results. Take a pound of flowers of sulphur and a pound of quicklime powdered, add them together with sufficient water to form a paste, add a gallon of water, put the whole in an iron saucepan or kettle and boil for twenty minutes. When cool and settled pour off the clear liquid and store it in a bottle. Use at the rate of one-quarter of a pint to 3 gallons of water. Observe we do not advise you to proceed otherwise than experimentally at first. We should ventilate more freely, keep the atmosphere of the vinery drier, and give the roots an extra supply of water or liquid manure to meet the demands of increased transpiration. The house should never be closed at night nor the temperature suddenly rise in the morning, or the berries being colder than the atmosphere will cause the moisture in the air, however slight it may be, to condense on them, and this favours mildew.

Large Onions (J. H.).—The large Onions you have seen at the shows are usually grown under special treatment. Early in the winter the ground is heavily dressed with good solid farmyard or stable manure; it is then deeply dug or thrown up roughly, in order that it may become thoroughly pulverised during the winter. As early in the spring as the weather and state of the ground permits, the autumn-raised Tripolis are transplanted from the seed beds in rows about 15 inches apart, and the plants not less than 6 inches asunder in the rows. The seed of those of the White Spanish type, such as the Improved Banbury, Improved

Reading, and Rousham Hero, is sown at the same time as the others are transplanted, and these mature where they are sown. In addition to the solid manure, about two surfacings of some kind of artificial manure are given, nothing being more effective than guano at the rate of about 3 ozs. to the square yard. This should be sown between the rows, preferably during showery weather, and be lightly stirred in with the Dutch hoe. Liquid manure of any kind or sewage is also given by some growers, and this is also best applied during showery weather, or before the ground has become very hard and dry. Neither water nor liquid manure should be given after the Onions are approaching maturity, or it will induce them to crack or become irregular in shape. It is too late to transplant your Tripolis, but you can thin them out freely and otherwise treat them as above outlined. Many of them will probably bolt, but the remainder, if liberally treated, may yet grow to a size fit for exhibition.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (E.)—*Thalictrum aquilegifolium*. (H. J.)—*Eriophorum polystachyon*. (G.)—3, *Aubrietia deltoidea*; 5, *Heuchera glabra*; the others were too withered. (Zitella).—The flowers were withered beyond recognition. It is probably a *Silene*.

COVENT GARDEN MARKET.—JUNE 4TH.

TRADE generally brisk, with good supplies of all classes of goods. Prices firm.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, ½ sieve	2	0	to	6	0	Melons, each'	2	0	to	4	0
" Nova Scotia and						Oranges, per 100 .. .	4	0		9	0
Canada, per barrel	18	0		25	0	Peaches, dozen.. .	4	0		18	0
" Tasmanian, p. case	15	0		0	0	Red Currants, per ½ sieve	0	0		0	0
Grapes, per lb. .. .	2	0		3	0	St. Michael Pines, each..	2	0		6	0
Lemons, case .. .	10	0		15	0	Strawberries, per lb. ..	1	6		5	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Artichokes, dozen .. .	0	0	to	0	0	Mushrooms, punnet ..	1	6	to	2	0
Asparagus, bundle .. .	2	0		4	0	Mustard & Cress, punnet	0	2		0	0
Beans, Kidney, per lb. .	1	6		0	0	Onions, bushel. . . .	3	0		4	0
Beet, Red, dozen .. .	1	0		0	0	Parsley, dozen bunches	2	0		3	0
Brussels Sprouts, ½ sieve	0	0		0	0	Parsnips, dozen .. .	1	0		0	0
Cabbage, dozen .. .	1	6		0	0	Potatoes, per cwt. .. .	3	0		4	0
Carrots, bunch .. .	0	4		0	0	" New, per lb. .. .	0	2		0	0
Canliflowers, dozen.. .	2	0		4	0	Rhubarb, bundle .. .	0	2		0	0
Celery, bundle .. .	1	0		1	3	Salsify, bundle .. .	1	0		1	6
Coleworts, doz. bunches	2	0		4	0	Scorzoneria, bundle .. .	1	6		0	0
Cucumbers, doz. .. .	2	0		3	6	Seakale, per bkt. .. .	0	0		0	0
Endive, dozen .. .	1	0		0	0	Shallots, per lb. .. .	0	3		0	0
Herbs, bunch .. .	0	2		0	0	Spinach, bushel .. .	1	0		2	0
Leeks, bunch .. .	0	2		0	0	Tomatoes, per lb. .. .	1	0		1	3
Lettuce, dozen .. .	0	9		1	3	Turnips, bunch .. .	0	4		0	0

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Anemone, dozen bunches	1	0	to	4	0	Mignonette, 12 bunches..	2	0	to	4	0
Arum Lilies, 12 blooms ..	2	0		4	0	" Fr., large buch	1	6		2	0
Azalea, dozen sprays .. .	0	6		1	0	Narcissus, 12 bunches ..	2	0		6	0
Bouvardias, bunch .. .	0	6		1	0	Paeony, dozen bunches ..	6	0		12	0
Carnations, 12 blooms ..	1	0		2	0	Pansies, dozen bunches ..	1	0		2	0
Calceolaria, doz. bunches	6	0		8	0	Pelargoniums, 12 trusses	0	9		1	0
Cornflower, doz. bunches	3	0		4	0	" scarlet, 12 bnchs	4	0		6	0
Deutzia, per bunch .. .	0	4		0	6	Pinks (white), doz. bnchs.	3	0		6	0
Eucharis, dozen .. .	4	0		6	0	Primula (double) 12 sprays	0	6		1	0
Forget-me-not, doz. bnch.	1	6		4	0	" (single) 12 sprays	0	0		0	0
Gardenias, 12 blooms ..	1	6		3	0	Ranunculus, doz. bunches	3	0		4	0
Iris, various, dozen bnchs.	6	0		18	0	Roses (indoor), dozen ..	0	6		1	6
Lapageria, 12 blooms ..	2	0		4	0	" Moss (Fr.), doz. blm.	0	9		1	6
Lilac (Eng.), doz. bunches	4	0		3	0	" Red, 12 blooms .. .	2	0		4	0
Lilium, various, 12 blms.	0	9		2	0	" Tea, white, dozen.. .	1	0		3	0
" longiflorum, 12 blms.	3	0		6	0	" Yellow .. .	2	0		4	0
Lily of the Valley, dozen						Spiraea, dozen bunches ..	6	0		9	0
sprays .. .	0	6		1	0	Tuberose, 12 blooms .. .	0	6		1	0
" dozen bunches	4	0		9	0	Tulips (Eng.), doz. bnch.	2	0		4	0
Marguerites, 12 bunches	2	0		6	0	Wallflowers, doz. bunches	2	0		4	0
Maidenhair Fern, dozen						White Lilac, French, per					
bunches .. .	4	0		9	0	bunch .. .	4	0		5	0

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi, dozen ..	6	0	to	12	0	Geraniums, Ivy, per doz.	5	0	to	9	0
Arum Lilies, per dozen ..	8	0		12	0	" Scarlet, per doz. .	4	0		9	0
Arbor Vita (golden) doz.	6	0		8	0	Hydrangea, doz. pots ..	9	0		24	0
Azalea, various, per dozen	18	0		30	0	Lily of the Valley, 12 pots	12	0		18	0
Calceolaria, per doz. .. .	6	0		9	0	Lobelia, per doz. .. .	4	0		6	0
Climbing Plants, various,						Marguerite Daisy, dozen	6	0		12	0
dozen pots .. .	4	0		9	0	Mignonette, per dozen ..	5	0		8	0
Cyclamen, per dozen .. .	0	0		0	0	Musk, per dozen .. .	2	0		4	0
Deutzia, 12 pots .. .	6	0		9	0	Myrtles, dozen .. .	6	0		12	0
Dracæna terminalis, doz.	24	0		42	0	Nasturtiums, dozen pots	3	0		4	0
" viridis, dozen .. .	12	0		24	0	Palms, in var., each.. .	2	6		1	0
Epiphyllum, per dozen ..	0	0		0	0	Pelargoniums, per doz. ..	9	0		13	0
Erica, Cavendishi, per pt.	2	0		3	0	Rhodanthe, per dozen ..	6	0		9	0
" various, dozen .. .	12	0		18	0	Roses (Fairy), per dozen	8	0		10	0
" ventricosa, per doz.	12	0		18	0	" 12 pots .. .	12	0		24	0
Euonymus, var., dozen ..	6	0		18	0	Saxifraga pyramidalis,					
Evergreen, in var., do en	6	0		24	0	per dozen .. .	18	0		24	0
Ferns, in variety, dozen..	4	0		18	0	Spiraea, 12 pots .. .	8	0		12	0
Ficus elastica, each .. .	1	6		7	0	Stocks, per doz. .. .	4	0		6	0
Foliage plant, var., each	2	0		13	0	Tropæolums, various, per					
Fuchsia, per doz. .. .	6	0		9	0	dozen .. .	3	0		6	0
Genista, per dozen .. .	8	0		12	0	Tulips, 12 pots .. .	0	0		0	0

Bedding Plants in variety, in boxes and pots.



HAYMAKING.

NEVER had we a better time for haymaking than that of last year, and never did we make better hay. The crop was abundant, the weather favourable, and the work was done so quickly and so well that even if we had sold the hay at the low price which has ruled since then the crop would have been fairly profitable. But it was not sold, and is still held over for the advance in price which may always be expected, and is bound to come till the silage stacks of the future become as plentiful as haystacks have been in the past. With such fine settled weather as we had for this work last year it seemed almost impossible to make bad hay, yet we had to take some decidedly inferior hay in valuation last Michaelmas, and still have some of it.

To ensure good nutritious hay that answers to the literal meaning of food as a substance that sustains, nourishes, and augments we must mow while the herbage is rich in albuminoids, which it is till the grass is in full bloom. As the flowers fade and seed is developed its value as food declines, and when the seed ripens the herbage contains very little more nutrition than sawdust. We may mow it then, and go through the process of haymaking, and though the bottom herbage may be sufficiently abundant to induce fermentation and the development of some flavour in the stack, such fodder affords very little sustenance to stock, nor can any doctoring with cattle spice render it worthy of a place in the category of sound wholesome food. It is therefore self-evident that we must be on the alert now, and be ready to time the mowing so as to take the herbage at its best as nearly as may be. Those who have only a small area reserved for hay ought to do this with precision, but where several hundred acres have to be dealt with it is not an easy matter to secure the whole of it at its best, even under the most favourable conditions of weather. It may assist some of our readers if we give some details of our practice at the home farm.

The pasture is so extensive that we have found it answer best to have three groups of ricks at points easy of access. Here there are stacks of bush faggots in readiness for the rick bottoms, which are made of a compact layer of faggots covered by a little straw. A couple of rick cloths with poles, ropes, blocks, and pulleys are also indispensable. With a couple of Hornsby's two-horse mowers we can mow twenty acres of grass daily by having two pairs of horses for each mower, and changing horses at intervals of time determined by bulk of crop. For a mower to get over ten acres daily in good style and make really good work of it the mower must be in perfect order at the outset, with duplicate connecting rods and other parts liable to sudden breakage; the bearings must be kept well oiled; the driver must be a willing, strong, experienced man; his pay must be sufficient to render him eager to start his machine by 4 A.M., and he must have sound active horses. The old heavy type of shire horse would not answer for such work. That it has plenty of strength we are free to admit, but it is sadly deficient in speed. It is because we have tried both breeds at this work that we are bound to give preference to the Suffolk Punch, that with its free elastic stride and nimble pace moves naturally twice as fast as the sluggish shire horse. Pace may be imparted by cross-breeding, as we have proved by using a shire horse for all the Suffolk mares of one farm, the result of this experiment being a lot of hardy useful horses. But the Punches are so entirely satisfactory that we have not tried the cross-breeding on any of the other farms.

A tedder and two horse rakes are required for each mower, and an extra tedder should always be at hand with plenty of waggons, horses, and men. The bailiff must be constantly with his men, and

must have full control of them. He must be held responsible for everything, and a wise agent will not interfere unduly, nor will he have occasion to do so if the bailiff is a skilful farmer and zealous servant. We have been fortunate in securing the services of several good bailiffs, and when we have well proved them care is taken to render it worth their while to serve us faithfully. During the haymaking our own farm bailiff is often on duty from 4 A.M. till about 8 or 9 P.M., and we have never heard a murmur about over-work; but then his pay for overtime is a solatium which keeps down any such feeling, and the money so expended is alike good for master and man.

The actual process of haymaking is very simple. Now at any rate before seed is formed, and preferably while the grasses are still in flower. Let the tedder follow the mower closely; draw the hay into big rows with the horse rakes as soon as it is sufficiently advanced in the making, work the tedder up and down these rows, using the back action; put into cocks if the weather is at all unsettled, and only then. Never cart direct from the cock, but shake out and dry thoroughly before loading on the waggons. Make big ricks, with one or more vents from top to bottom, to allow superfluous heat to escape freely. If there are no hay basins, top up so as to throw off wet well from the roof, and then the thatching need not be done till all risk of overheating is at an end.

WORK ON THE HOME FARM.

"A prime season" this has well been called, and he who has not taken full advantage of it to well work his fallows and push on the sowing of Swedes and other Turnips is unworthy to have the care of land at all. Bright May days have been the rule, and cloudy ones the exception this year. The moist warm soil has been most favourable to seed germination and brisk growth, and on the whole we never saw crops more full of promise than at the present time. Sheep and lambs are scarce and dear on the markets, and there is a better prospect for the wool sale than we have had for several years. Wool stocks are exceptionally light, and the woollen trade is brisk, so that wool is certain to be in fair demand, but we shall not hold the wool over for any great advance as that is out of the question with our enormous colonial production of this article.

As was to be expected, there is a glut of beef in metropolitan markets, and butchers must be having a good time of it, for while we hear of live cattle in prime condition only realising 3s. per stone of 8 lbs., yet there is no appreciable reduction in retail prices. If this reaction tends to cheapen young stock it may answer to purchase a few extra calves, but with such an abundance of green food such stock is likely to be held for grazing. The lesson taught here once more is not only to keep on breeding and rearing stock as well as we can, but also to watch markets closely, and to sell with caution. Neither a slack market or a full one can be taken as a safe guide, for we have repeatedly seen matters driven to an extreme at the next market by the keen competition of men who apparently forget for the moment that there are plenty of others as keen at business and as watchful for a chance as themselves.

Exception was recently taken to the appearance of some young Suffolk sows which we had specially selected for breeding, on the score that they were too fat. Our critic was a dairy farmer, who, in common with so many others, thinks it right to keep store pigs in a state of semi-starvation. We were at some pains to explain that what he termed fat was mere frame development, for the sows are exceptionally fine ones, and as they stoop to eat display a rare breadth of body, while the ribs have very little superfluous flesh or fat upon them. Upon the principle that like produces like, the parent animal must be well nourished if it is to breed fine porkers, and the proper course of treatment is to strive for the happy mean between an extremely low or high condition.

METEOROLOGICAL OBSERVATIONS.

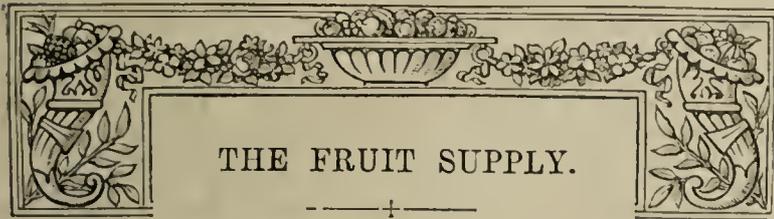
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.							IN THE DAY.				Rain
	Barom. ter. at 32° and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		In. On grass		
		Dry.	Wet.			Max.	Min.	In sun.	On grass			
1890.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.		
May.												
Sunday	29.900	68.8	59.0	N.E.	58.8	77.6	52.8	119.3	49.6	—		
Monday	29.949	54.1	45.4	N.W.	59.7	63.9	44.4	120.1	41.6	—		
Tuesday	29.984	54.9	43.1	N.W.	58.1	64.1	42.0	115.0	37.8	—		
Wednesday ..	30.105	53.3	47.9	N.W.	57.2	60.9	43.9	95.9	33.8	—		
Thursday	30.149	56.1	53.4	N.E.	58.9	65.4	47.2	116.9	41.6	0.034		
Friday	29.954	53.9	52.1	N.E.	57.3	65.1	50.0	114.4	46.7	—		
Saturday	30.165	59.9	43.9	N.W.	55.9	64.0	39.1	112.3	35.5	—		
	30.030	56.0	49.7		57.7	65.9	45.6	112.3	41.7	0.064		

REMARKS.

25th.—Bright and hot.
26th.—Cloudy early, and occasionally during the day; much cooler.
27th.—Bright throughout, but still cool.
28th.—Overcast and cool in morning, frequent sunshine in afternoon.
29th.—Fine and generally bright.
30th.—Wet till 9 A.M.; cloudy morning; generally bright in afternoon, and cool night.
31st.—Fine cirrus bands 11 P.M.
31st.—Brilliant early; fine and generally bright day.
Generally fine, but rather cooler than the previous week.—G. J. SYMONS.



WE are reminded by a circular received from a great firm of city fruit brokers (Messrs. W. N. White & Co., of Covent Garden) that the time has arrived when an approximate estimate can be made of the fruit supply of the year. The Report before us embraces a very wide field of culture—namely, England, France, Holland, Belgium, and Germany. London fruit dealers are very matter-of-fact individuals, and are as ready to obtain “goods” from any of the countries named, also from America and the Antipodes, as from British gardens and orchards. They have no prejudices. They will buy British fruit as readily as foreign, and foreign as readily as home-grown produce, when the samples and prices are “right.” In thus acting they are but servants of the public—the great body of consumers. The best that can be had at the lowest price is the great governing factor of the whole question. If a London fruit broker is told it is unpatriotic to search the world for fruit for stocking the home market he will quickly tell you that business is patriotism, and that fruit-buying patriots are influenced by pennies. We suspect there is a good deal of truth in the proposition, and the whole matter seems to resolve itself into solving the old-fashioned problem of giving the best pennyworth for a penny. That is what consumers demand, be they rich or poor, and that is what producers must strive to supply in the form of fruit for our markets. If we may judge by the Report in question home and foreign growers have much the same natural impediments to contend with, and we are sorry that the best we can say in respect to the international outlook is that we are not much worse off than our neighbours. Our readers can, however, judge for themselves:—

“ENGLAND.—Reports from the home counties early in May spoke favourably of prospects and anticipations of good crops of all kinds of fruit. Since then changeable weather has been experienced, some days very warm, other days very cold, morning frosts, and all kinds of fruit have suffered severely.

“Plums (Damsons, Plums, and Green Gages).—The prospect is very bad, not one-tenth of a crop. In many places there are absolutely none.

“Pears.—Although all kinds, except ‘Hazels,’ blossomed well, very few have properly set; and there are not many in England of either early or late kinds.

“Black and Red Currants promised well—even as late as a week ago it was thought that crops would be good; but since then, in some districts, they have been attacked by the ‘honey-dew,’ and the crop now cannot be more than one-half, even if that.

“Cherries promised well, but early kinds were destroyed the second week in May. Since then the later sorts have suffered; taking reports all round they cannot be reckoned at one-third of a crop.

“Strawberries and Raspberries promise well, but it is feared that unless warm weather soon sets in the fruit will be small and the bulk reduced one-half.

“Gooseberries at one time were believed to be an exceptionally fine crop, but since then many districts have been attacked by vermin, and the morning frosts in exposed situations have done great damage, so much so that they can only be reckoned at a good half-crop.

“Apples blossomed well in some districts, in others not so well. Where growers have washed their trees they will no doubt save the bulk of the crop; but in many districts where they have not washed them the trees are attacked by vermin, and the crop (if any)

must be a very poor one. On the whole we think the crop can be reckoned at barely one-half.

“FRANCE.—Crops generally in the early part of May looked very favourable indeed. Since then they have had a continuation of very cold wet weather, and early Cherries have suffered severely. On the other hand, Apples in the south are said to be good crops, Plums and Green Gages half a crop. In the north Black Currants are only half a crop. Cherries are fairly good; but of stone fruit (Plums and Green Gages) it is stated that the oldest inhabitants never knew the crop to be so bad as it is this year. Pears are a fair crop. Apples look fairly good.

“BELGIUM.—Reports from Ghent, Ostend, Maestrich, Sliedinge, and Namur speak of Cherries from a quarter to one-third of a crop; Green Gages and Plums only a quarter crop; early Pears half a crop; late Pears a fair crop. Apples are said to look well, with every prospect of a fair crop, although reports from one or two districts during the past few days speak of Pears and Apples being attacked by vermin.

“HOLLAND.—Crops of fruit have suffered much with late frosts during May, particularly Cherries, Gooseberries and Pears. In the district of Gelderland particularly the fruit has received much damage from “hail-storms.” Gooseberries and Currants are said to be a fair half-crop. Cherries are not more than one-third of a crop. Pears one-third of a crop, and Apples fairly good. Plums are a small crop.

“GERMANY.—Owing to the mild spring crops are forward, and fruit from the Rhine districts promised to be most plentiful; but the weather in May has affected them also, and they have been attacked by vermin; so much so that Apples are now said to be a bad crop, and Cherries only half a crop. Plums a bad crop.

“Taking these reports as a whole it will be seen that Cherries are bad all round, Plums are very short, and for Pears England will have to depend upon foreign countries for supplies. It would therefore appear that on account of their scarcity, all kinds of soft fruit in good condition will meet with a profitable market.”

The above Report, so far as it refers to this country, probably fairly represents the prospective fruit supply. The crops, as is usually the case, vary considerably in different gardens and districts; but so far as our observations and information enable us to form an opinion on the subject it is that the Apple crop is decidedly below the average. The best crops are on young trees—strong, yet not over-luxuriant, and in which overcrowding of the growths was prevented by timely and judicious pruning. Apart from the ravages of caterpillars many old orchard trees are almost quite destitute of fruit, and the national crop will be light.

The “one-tenth of a crop of Plums” is a very low estimate, but we are not prepared to say it is too low; it certainly is not as applied to several extensive plantations we have seen, though we trust there may be others much more productive. As in the case of Apples, young trees blossomed much better than old, and on some fair crops of fruit set, and what remains ought to be very fine. Pears are, generally speaking, perhaps a little more promising than Plums, but a large per-centage of trees are barren, and the crop is not likely to equal that of Apples, light as this must be. The “Hazels” referred to are Hesse Pears, which is usually one of the most productive varieties. Cherries blossomed very well as a rule, but the fruit did not set and swell satisfactorily, and on the whole we doubt if anything like a third of a crop will be gathered. We hope and suspect there will be more than half a crop of Currants, Gooseberries, Raspberries, and Strawberries, though we are aware that this cannot apply to all localities, for frost at the close of May wrought ruin in some gardens.

The year will teach another lesson, that fruit cannot be grown by arithmetic as taught by book-worms who know nothing practically of the difficulties cultivators have to encounter. Caterpillars in the west and sparrows in the east have asserted their power as preventers of fruit. Relative to the latter, a correspondent writes:—

“The present year promises to be the most disastrous ever known in East Suffolk for hardy fruits, such as Pears, Apples, and

Plums. The Plum trees were full of fruit buds, but in spite of lime-washing the sparrows began on them at the end of January and swept them completely away. Even the Bullace trees were denuded of buds. I have eleven standards about twelve years old that were washed three or four times with soot and lime before the end of January, and yet the whole eleven cannot muster one Plum. The sparrows attacked the early Pears about the same time, though protected in the same way, and only by daubing each bud thickly with the mixture were any buds saved for blossoming. The sparrows also played havoc with the bright red Apple blossoms as late as the middle of May, tearing them in pieces out of mischief when they were the size of marbles. The sparrow pest is the greatest trouble fruit growers have to contend with in East Anglia."

The bird men who cry aloud to protect sparrows will probably take refuge in the assumption that the pets were searching for insects, but that is small consolation to the fruit grower who has all the blossom buds pecked from his trees. Where sparrows are so numerous as to become a plague, as is the case in some localities, it is easier to destroy insects than prevent the birds turning a bright promise of fruit into a scene of desolation, even if the weather were favourable to the setting and swelling of the fruit. Moreover, we suspect there are many gardeners and fruit growers who are quite aware that where sparrows abound insects abound also.

There is truth in the observation, "Where growers have washed their trees they will no doubt save the bulk of their crop of Apples, but where they have not washed them the crop must be a very poor one." Is there any wash that can be applied effectively against a horde of voracious sparrows?

The planting of young trees in good soil, growing them as bushes rather than tall standards so that they can be better kept free from insects, appears the best system to adopt for, as far as weather allows, providing a good supply of fruit in the future.

PROFITABLE FLOWER CULTURE.

THE BOUVARDIA.

As far as my experience goes Bouvardias are not particularly profitable, but they rank as being decidedly serviceable in most private gardens, and may well, therefore, be extensively grown. Where many buttonhole flowers are in demand, whether for home use or for florists' shops in provincial towns, Bouvardias are almost indispensable, and they are also fully appreciated in mixed boxes of cut flowers. Private gardeners as a rule do not succeed very well with them, one frequent cause of failure being the attempt to grow them amongst a great variety of other plants. They are not adapted for ordinary stove culture, and they are almost certain to fail in a greenhouse temperature. Where they are most at home are light well heated forcing houses, and serve well to fill up the time between the clearance of Melons, Cucumbers and Tomatoes in the autumn and the renewal of these in the following spring. If a whole house cannot well be devoted to Bouvardias then ought at least a good light position on either a bed or staging not far from the glass be given up to them. At the outset the greatest difficulty is felt in procuring a sufficiency of either cuttings or young plants. Capital spring struck stuff can, however, be bought at a comparatively cheap rate, but the exact locality of the growers of those for sale I cannot give without encroaching on the advertisement department of this Journal. One thing is certain, young plants are the most profitable, and when once the stock has been formed their perpetuation or increase is quite an easy matter. That old plants can be remarkably well grown and flowered I well know, but I am equally as well aware that strong young or one-year-old plants produce both the finest trusses and a much longer succession of them—a very important point in their favour, seeing that only a limited supply is needed at one time. Moreover, young plants can be set very thickly together on a bed or staging, and, rarely, if ever, collapse from some unexplainable cause.

Clean, healthy young shoots will strike nearly as readily as Verbenas if given the benefit of a brisk bottom heat and a glass covering, but more often than not they are too "wiry" to root satisfactorily, and in any case root cuttings are the best. The earlier the latter are taken off the old plants in March the better. If it is desirable that the old plants be saved, they ought to be

rested or dried off somewhat after flowering, and then well pruned back, or treated similarly to Fuchsias. Being duly placed in a brisk heat and watered, they soon break afresh, and it is then when they ought to be shook out, and a portion of the roots taken off prior to repotting them in sizes considerably smaller than those they previously were in. When the old plants are not valued they may be kept flowering later, ours being still serviceable, and the root cuttings can be taken from them at any time. The longest of the latter may be shortened somewhat or cut into halves, but the majority will require no preparation. Place them rather thickly in pans, boxes, or pots of fine sandy soil, the thick end from which the young shoots spring being kept slightly above the rest. Set on or plunged in a brisk hotbed, most of the cuttings will quickly push up shoots, and these when about 3 inches long should be pinched back, potting taking place soon after. Place all singly into 2-inch pots, and keep them growing in a brisk heat. Pinch back once more, and when they are breaking afresh, and before they are much root-bound, shift into 4-inch pots, and finally into either 6-inch or 7-inch pots, according to their vigour.

By the time the final shift is needed the summer will be well advanced, and the Bouvardias will thrive best in shallow pits or warm frames. Each will be furnished with four or more fairly strong shoots, but these will not give much flower, and what are needed as strong suckers from the base of each plant. There is no certainty about these being produced naturally, and it is necessary to carefully peg down the shoots soon after the final shift has been given. Then if they are kept fairly warm and well syringed when the lights are closed fine strong suckers will be plentifully produced. Do not stop these, but merely set the plants on a bed of ashes in a sunny position, this both retarding flowering and hardening these sappy growths. All ought to be housed again before the weather becomes wet and cold, or say by the middle of September, and they will commence flowering at once. These young plants are capable of pushing up suckers 2 feet or more in length, and which gives a large central truss and numerous strong side trusses. If the older plants that have been shaken out and repotted are kept growing in brisk heat, a shift being given when the pots are well filled with roots, and the principal growths stopped about twice, fine bushy plants may be obtained, these also requiring to be kept cooler during the summer and ripened somewhat. In favoured localities, notably where the soil is warm and light, Bouvardias may safely and with advantage be planted out in a sheltered position some time in June, these being carefully potted before frosts touch them. This plan proved quite a failure here, but a modification of it in the shape of planting out in a deep pit answers well. In either case the plants ought to be pruned, started, shaken out, and repotted as previously advised by way of a preliminary, the planting out taking the place of a shift into larger pots. If not too old and they take well to their quarters Bouvardias when planted out push up several strong flowering suckers, and very few are injured by lifting, slightly reducing the balls of soil and roots, and repotting. Clean well-drained pots are indispensable, and a suitable compost consists of three parts of light fibrous loam to one of good leaf soil, sand and a little charred soil and rubbish not being thrown away on them. When the latter especially is used, both in the planting and potting composts, liquid manure may be more safely and advantageously applied.

It is not advisable to introduce all the plants into heat at one time, in fact we sometimes keep all in a cool pit till the middle of October in order to retard them. Where ours all eventually find their way—and we grow 200 plants—is a fairly light airy structure, the night temperature of which ranges from 50° to 60° during the winter, and somewhat higher in the daytime. Green fly has to be kept down by fumigation, mealy bug is hunted up and crushed; and if what I believe to be minute red spider affects the young shoots, causing them to assume a diseased stunted appearance, the best remedy is occasional applications of sulphur, this being mixed with the syringing water.

I have never obtained good prices for Bouvardias at either London shops or markets, 6d. per dozen trusses being the highest, and 3d. per dozen the lowest returns. At fairly large country towns much nearer I sometimes get as much as 3s. per dozen for the finest trusses, the prices for the rest gradually falling to about 9d. per dozen. At these prices Bouvardias pay fairly well, averaging say 1s. 3d. per strong young plant. We cut with fairly long stems where this can be done without injury to other later trusses, and pack in double layers flatly and closely together. I have frequently sent four dozen trusses in strong cardboard postal boxes for 4½d. The two most profitable varieties are Alfred Neuner, double white; and President Garfield, double pink; and we grow these principally. Thomas Meehan and Victor Lemoine, double scarlets, are fairly good, while of single varieties the best

are Vreelandi, white ; candidissima, white ; Dazzler, bright scarlet ; President Cleveland, very rich scarlet.—M. H.

SALADING AND SALADS.

WHEN a distinguished foreigner, such as Mons. Henry de Vil-morin, is good enough to come over from Paris and give a lecture on winter salading it is manifest that the subject is one of importance, and equally so that we have a good deal to learn upon the subject. It is one of the fallacies which people indulge in on this subject. Oh ! yes, it is all very well to recommend salad in the winter, but then Paris is so much warmer than we are, and they can do it with impunity ; but Paris is colder in winter than most parts of England, and therefore that does not hold good, and yet we find it very hard to persuade people that a well-dressed salad is a wholesome addition to a meal even in the middle of winter.

As this is the season when preparation should be made for the purpose of obtaining the materials for winter salading, it will not be out of place to set forth some of those which, although largely used on the continent, are but little known or valued amongst us, premising that as all these must be blanched they can never attain the crispness of our summer salads. There is a prejudice amongst us against eating salad in winter, and although we grow largely and consume great quantities of the very indigestible Celery, people as a rule pass the salad bowl when it is handed round at dinner. Sometimes it may be because it is not presented in a very tempting form (of this more anon), but more frequently because it is considered a very cold and unwholesome thing to eat in winter.

The principal ingredients, as far as the vegetables are concerned, used in winter salading in France are Endive, Lettuce, Chicory (Barbe du Capucin), Dandelion. There is another form of Chicory much used in Belgium called Witloof, and frequently found in the Paris market ; but we do not find in our greengrocers' shops these latter vegetables. They are to be seen in Covent Garden, but do not command a very ready sale.

It is remarkable that we do not attempt on any large scale the cultivation of Lettuce for winter use, for we import a considerable quantity from France annually. Around Paris it is largely cultivated in market gardens under those curious bell-shaped glasses "cloches," but the attempt to introduce them into England in any large measure has failed, yet they are quite as easily managed here as in France. The practice there is to put about four or five Cabbage Lettuces under a cloche, to protect them sometimes in very severe frost with loose litter. In mild winters the old Hammersmith will stand out without any protection, and if planted at the foot of a wall facing south will, even in more severe winters, weather the storm, as it is very hardy. The Endive is, however, much more used, and although one rarely sees the good perfection in which it is brought to the Paris markets, yet it can very easily be grown. There are two kinds mostly in use, the Curled and the Broad leaved Batavian. This latter is the hardier and the best for eating ; the Curled is too much so to be pleasant for eating, and is very easily blanched. Some confusion is caused by the fact that the Endive is called Chicorée by the French, while the wild Chicory is called Barbe du Capucin. There are several ways in which Endive may be blanched. I have been accustomed to place large pots over each plant, putting a cork or piece of slate over the hole, and if carefully watched so that damp does not get into them, this answers very well. I have also taken up some plants and planted them in boxes and put them into the cellar, for where light is excluded there the blanching very soon takes place. Some place a shutter flat down on a number of plants. In fact, anything that will exclude light and moisture will effect the purpose.

Chicory, or Barbe du Capucin, is treated in an entirely different way. The seed is to be sown about the middle or end of May in a fairly open place in rows about 12 inches apart. When the seedling plants are fit to handle the rows should be thinned out and the plants left at about 9 inches apart. The beds must be carefully weeded and the plants allowed to remain all the summer ; at the latter end of September they are to be lifted off and taken into the house. They may be laid up as Carrots or Beetroot are stored, and then from time to time when wanted a certain number of them are taken up, planted in a pot, slightly watered, and returned to the cellar or whatever dark place is convenient, and allowed to shoot. It is these young blanched shoots when they attain about 9 or 10 inches in length that are used ; they are not fit for salad by themselves, but they do very well for making one up. Either Lettuce or Endive—Witloof—may be treated in the same way.

Dandelion is another root which is used in somewhat the same way. There is a broad-leaved French variety which is preferable. Care must of course be taken that it does not flower and seed, as we have plenty of them in our gardens without importing any

more. It must be taken up in the same way as Chicory, and it is the blanched shoots which are eaten. There is a pleasant bitterness about them which adds considerably to the value of the salad.

There are some other plants which are used for salading in Paris, but as far as my recollection goes these are the principal. Beetroot is extensively used as it is with us, but it is so generally grown that there is no need of giving any directions with regard to it, save this, Do not sow too soon. There is no advantage in getting large roots, they are sure to be stringy. Medium sized roots are always the best, and if sown too early they are sure either to be large or to "bolt."

But after all there is one very important matter, a point, too, in which I think English housekeepers are sadly deficient—the way of using the materials provided for them. One calls to mind the frightful messes that are sometimes handed round a dinner table, nasty flaccid stuff saturated with vinegar or some mixture or other, or thiunks of the recipes that are given for making a salad in some books. Thus I remember one which had these lines in it—

"And in the magic mixture toss
A spoonful of anchovy sauce."

Can anything be thought of more dreadful than to sit down to such a mess as this? Then we have salad mixtures of various kinds, some good and some bad, but if anyone would only watch a French waiter preparing a salad he will not need any further lesson. In the first place the salading must be perfectly dry. When well washed it should be shaken in a wire basket, and then gently dabbed with a dry cloth. It should never have a steel knife near it, and should either be pulled to pieces with the fingers or else cut with a silver knife. Salt should then be gently sprinkled over it, and oil and vinegar poured evenly over it in the proportion of one of vinegar to four of oil. It is better to use tarragon vinegar unless the herb itself can be had to mix with the saladiug. After it is mixed the salad should be gently turned over with a wooden spoon and fork, and all this should be done a few minutes before it is wanted. Few persons, I think, will resist the temptations of a salad so prepared, while they may well be pardoned if they refuse many of the things offered to them as salads.—D., Deal.

GRAPES FROM THE CAPE.

THE extract given in the Journal from the report on the attempt made to send Grapes and other fruits from the Cape to the London market proves conclusively that Sir C. Dilke was entirely wrong when he said in "Problems of Greater Britain" that Grapes were imported from the Cape in large quantities, and that they arrived in good condition and realised good prices. In this case he must have been drawing on his imagination for his facts!

While remarking on this inaccuracy, I might also point out another gross blunder in Sir C. Dilke's book. Referring to the Cape Town Botanic Gardens, he describes them as splendid, and one would think that large sums of money were expended on them when reading the glowing description of them! As a matter of fact they are shabby in the extreme. This is not to be wondered at when it is stated that only £500 a year is allowed to keep up the Botanic Gardens at Cape Town, and of that paltry sum the major portion is swallowed up in paying the scientific director! The practical man is left with a miserable pittance, which he has to eke out by selling plants, seeds, &c. If the visitor to Cape Town first goes through the splendid Parliament House there and then steps across the avenue to the Botanic Gardens he cannot fail to be struck with the contrast.

In the one case no expense has been spared in order that Cape legislators may have every comfort, convenience, and luxury ; in the other case poverty stares one in the face.

Such a state of matters is highly discreditible to the Cape Town people and to Cape colonists in general, and it is to be hoped that a more adequate sum will soon be set aside for the maintenance of the Botanic Gardens. Then there may be some hope of their being entitled to be described as Sir C. Dilke has described them in his interesting but not too accurate book!—J. T.

NOTES ON EARLY ENGLISH HORTICULTURE.

(Continued from page 258).

It is possible that too great honour has been given to Holland for the influence it exerted upon our horticulture during two or three centuries. The Dutch and Flemings introduced to England several vegetables unknown in this land. They inspired our

ancestors, it is true, with a liking for some ornamental flowers, and they suggested improvements in the cultivation of fruit trees. But we have more reason still to be grateful to Italy and France. Both these countries furnished our gardeners with a variety of methods, and for a much longer period than the Dutch they transmitted to Britain a large number of new flowers, fruits, and vegetables, which came *viâ* the Continent from Asia and Africa. Probably if we had not accepted a king from the Netherlands the Dutch style of ornamental garden would never have been popular, and, like the Chinese, though it had some points of merit, it was not, on the whole, at all suitable to our island. London and Wise, of whom I have already spoken, highly praised as they were in their day, seem to have shown very little inventive genius, and the three men who, under the early Georges, did most for the improvement of pleasure gardens, altering old methods and contriving new ones, were certainly Bridgeman, Kent, and Brown. It is a curious fact that long after an entire change in the style of laying out and planting had become general throughout England, north of the Tweed the methods of London and Switzer were still followed, gardeners instructed by them having travelled to Scotland in the reign of Anne.

A Latin epitaph, in which Lord Cobham of Stowe is credited with being the introducer of the modern style of gardening, illustrates the fact that many men are praised for doing what they have paid others to do. His lordship's inventive faculty was not remarkable, and if the crowding of a variety of buildings into his gardens was to suit his fancy, it does not say much for him, as these were admitted to be a defect of Stowe. In other respects Stowe was no doubt an example of the transformation made by Bridgeman and Kent, both of whom were engaged there, when they ceased to follow the formal mode of planting trees and planning walks. They tried to copy Nature, by placing trees and shrubs irregularly, not in lines or avenues; while they arranged the walks and flower beds of a garden so as to please or refresh the eye, not to weary the stroller. The abolition of the too numerous walls and fences which had been popular, partly on the plea of affording shelter to plants, was a grand improvement. The first ha ha fence constructed in England is said to have been planned by Bridgeman at Stowe. Kent is supposed to have commenced his experiments upon the grounds of Woburn Farm, near Weybridge, where he laid out thirty-five acres in a very ornamental style, of which no trace remains.

Kent had been an artist, beginning as a coach painter at the period when coaches were profusely decorated; he advanced to ceilings and historical subjects in entrance halls, then took to landscape gardening, and borrowed hints from Pope and Burlington. He was ahead of Bridgeman in his adherence to Nature, and appears to have generally discarded the circuit walk between two lines of hedge, which it had become fashionable to carry round small gardens. But he always advocated the formation of an outer walk, moderately wide, along each side of a garden, placing upon the inner edge of this walk occasional evergreens, and in the spaces between showy herbaceous plants. One of Kent's important works was the laying out Carlton House gardens, between Pall Mall and St. James's Park, for Lord Burlington, gardens much admired by visitors from all countries, and of which a detailed drawing exists by Woollett, exhibiting numerous bowers and grottoes. Kent, or as some think Bridgeman, laid out the 280 acres which were early in the eighteenth century taken off Hyde Park to be added to Kensington Gardens. One of Kent's funny ideas in planting groves or shrubberies was, it seems, that of sticking in here and there a dead trunk, so that there might be a closer resemblance to a woodland scene. Gardens at Esher and Claremont laid out by Kent added to his popularity, Claremont especially (the name of this is supposed to have been originally "Clearmount" from the prospect afforded by a particular hill), and even yet these gardens are a memorial of Kent's style of arrangement. An odd invention of that time was what was called a "root house," not, as some persons have imagined, a place for storing roots, but a garden retreat constructed of old roots, underground stems, and twisted branches of trees, generally affording to those who sat in it an abundance of woodlice and beetles. Early in the eighteenth century we should have found the best arranged, though not the most extensive, orchards of England at the west of London. Many acres of ground about Fulham, Chelsea, and Kensington were occupied by fruit trees, and space was economised, for the method prevailed of having an upper and under crop. This was not, however, done entirely with the object of raising as much fruit as possible in a given space, and there was no need to crowd while land was cheap, but the gardeners of that day also thought that Gooseberries, Currants, and Raspberries grew better under the shelter of trees. It was almost a century before they were convinced that the shrubs did better when they had more light and air. As to the question of the transfer of caterpillars from the trees to the bushes, and *vice versa*, it is true that the common Gooseberry caterpillar is almost omnivorous, and will eat Apple or Plum readily.

Probably our predecessors might argue that it is the lack of an undergrowth which makes our fruit trees so infested with caterpillars of late years, but in point of fact such species as the ermine, the winter moth, the lackey, and others, will not touch any species of Ribes, nor the Strawberry, and they must be hard driven to feed upon the Raspberry. The secret of the increase of caterpillars is probably the destruction of so many small birds.

Amongst the expedients adopted by Georgian gardeners, with a view to increase the fruitfulness of young trees, was that of transplanting them or laying bare a part of the roots. As early as 1650 the French had practised driving oaken plugs into trees as a stimulus to growth. Du Hamel, a French author, persuaded his English friends to try his plan of ringing the trunks and branches. By 1725 the Pine had come into general cultivation, and every considerable garden had its stove. It was then usual to keep the plants in dry stoves during winter, and in summer they were removed to hotbeds of tan with bark under frames. The Strawberry had not become an important fruit as yet, and its cultivation was limited. Rensch, the elder, of Southfields, near Fulham, is credited with having been the first to make known the Pine and Chilean varieties.

Southfields, occupied for nearly two centuries as a nursery, and through the greater part of that time by the Rensch family, was associated with horticultural progress, for Nathaniel Rensch was one of the first gardeners who attempted an annual exhibition of plants, and he also offered prizes for curious varieties of evergreens. He reared the largest specimens of *Arbutus* that were grown in the eighteenth century, and he was great in *Auriculas*, but it is doubtful whether this was the nursery from which the Moss Rose was first sent out. Roses did not attract much notice when George I. was King, those gaudy flowers the Carnation and Tulip being prime favourites.—J. R. S. C.



CYPRIPEDIUM AYLINGI ×. (See next page.)

MANY beautiful hybrid *Cypripediums* have been raised, flowered and certificated, but the one which was shown on Tuesday last, June 10th, under the above name by Mr. Ayling, gardener to A. J. Hollington, Esq., Forty Hill, Enfield, at the meeting of the Royal Horticultural Society in the Drill Hall, James Street, Westminster, will take its place amongst the best yet produced. A cross was effected about six years ago between *C. niveum* and *C. ciliolare*, and from the seed then secured several plants were raised, that shown being the first to expand its flowers, and it formed the centre of attraction at the meeting, not only to orchidists but to the visitors who were present, and who, without possessing a special knowledge, would appreciate a beautiful flower.

It is very distinct, and though the characters of *C. niveum* can be clearly detected, a difference of opinion existed with regard to the pollen parent—*C. ciliolare*. Some thought that it was impossible to trace its effects, and that *C. lævigatum* must have been employed, but Mr. Ayling was positive that the parentage given was absolutely correct. The flower has an erect bold appearance, with a peculiarly delicate colouring, and may be thus briefly described: The dorsal sepal is ovate in form, 1½ inch deep, and the same in diameter at the widest part; white, with a number of closely placed small purplish crimson dots arranged in veins. The lower sepal is broad, rounded, and white. The petals are 2¼ inches long, 1 inch wide in the centre, and tapering to the tip, also with numerous purple dots more densely placed in veins. The lip is quite of the *C. niveum* character in shape, pure ivory white, and with a polished surface. The staminode is rounded with a few green veins, and a fringe of dark purplish hairs on the margin. The leaves are very thick and short, smooth, bright green, and glossy, with a few slightly darker green veins showing through the transparent surface. The plant had three growths and one flower. The engraving is from a sketch of this taken at the meeting.—LEWIS CASTLE.

CALANTHES.

EARLY started plants will be growing rapidly and rooting freely. If started in small pots they should be transferred into

those in which they are to flower. Pots 5 and 6 inches in diameter should scarcely be filled with one-third of drainage, and ample room should be left for watering after potting is completed. These plants do well in equal proportions of fibry loam and peat—leaf mould may be substituted for the latter—with the addition of coarse sand and one-seventh of cow manure that has been stored for six months and passed through a fine sieve previous to mixing it with the compost. Arrange the plants over a

wire baskets and suspended from the roof. They may be grown with the general stock, but must be watered most carefully at first.

PHALLENOPSIS.

These need careful attention. Do not expose them to strong light or bright sunshine. They will grow rapidly if they have not too much material about their roots, and are dewed with the



FIG. 74.—CYPRIPEDIUM AYLINGI ×.

moisture-holding base close to the glass, where they can be shaded from the direct rays of the sun. They enjoy abundance of light, but strong sunshine they cannot endure. Water the plants carefully until they are rooting freely in the new soil, when liberal supplies may be given. Maintain a close moist atmosphere.

Where small and old pseudo-bulbs of *C. Veitchii* and others have been started in boxes and pans pot them without delay. These may be placed thickly together in 5-inch pots, the growths being turned outwards as they have room to grow and every chance of developing strong flowering pseudo-bulbs for another year. If room is limited they may be placed in moderate sized

syringe at least three times daily. During the season of activity the material about their roots should never approach dryness, in fact water should be constantly dripping from the pans or baskets in which they are grown. Any plants that are not growing freely must be watched carefully, for when in a starved stunted condition they are liable to become a prey to the attacks of thrips.

DENDROBIUM WARDIANUM.

Plants that were started early into growth have completed the extension of their pseudo-bulbs, and have commenced to assume a yellow ripened appearance towards the base. These will be better

gradually hardened, and removed to cooler quarters, where they can slowly but thoroughly mature their growth. They should now have a position where they can enjoy a good circulation of air by day, and be gradually exposed to more light and sunshine. A vinery where the Grapes are colouring and the roof is not unduly shaded with foliage will suit them well. Do not diminish the supply of water. If plants in this condition are retained in heat they frequently start into a second growth, which has not much chance of being ripened thoroughly, and may possibly suffer from damp during the period of rest.

CYPRIPEDIUM INSIGNE.

Plants that have been in the habit of flowering early by assisting them to make their growth in heat should now enjoy more air and a cooler atmosphere. These flowers are much more serviceable during November and December than earlier, and if kept too long in heat it will be difficult to retard them for flowering during those months. They should still enjoy a shady position, and have abundance of water both at their roots and on their foliage.

DISA GRANDIFLORA.

Where these have had abundance of air strong flower stems will be extending rapidly. Place them at the coolest end of the house, where they can enjoy a free circulation of air. Give the plants abundance of water both at their roots and over their foliage. Watch for aphides, and if they appear remove them at once by means of a sponge and a weak solution of tobacco water.—ORCHID GROWER.

MR. SMEE'S CATTLEYSAS—NOMENCLATURE.

At the R.H.S. meeting on Tuesday last Mr. Smee exhibited three handsome Cattleyas—namely, *C. Mossiæ* Mrs. Smee, with *C. Mendeli Hackbridgensis* and *C. Mendeli Alfred Smee*, all of which were, in my opinion, sufficiently distinct to have merited awards; however, only one was so honoured—*i.e.*, the last named, which is remarkable alike for the fine shape of the flowers and the intensely rich shade of crimson. Mr. Smee has for some years made a close study of these Cattleyas, and has at least seventy or eighty of the most distinct varieties in cultivation. The three named above were selected from them for their general good qualities, and this fact alone should be some indication of their title to recognition. Another matter caused some discussion—namely, the fact that the varietal name of *Hackbridgensis*, which has been employed for several years, was struck out, though the "Nomenclature Rules" recently adopted expressly state that they should not be retrospective.—L. C.

ORCHIDS IN FLOWER AT UPPER HOLLOWAY.

MESSRS. B. S. WILLIAMS & SON have now an extensive display of Orchids in flower at the Victoria and Paradise Nurseries, and respecting the diversity of the show the following list will give some idea.

Anguloa Clowesi, *Aerides Houletianum*, *Angræcum Sanderianum*, *Bifrenaria vitellina*, *Calanthes masuca*, *veratrifolia*, and *Sanderiana*; *Cattleyas lobata*, *Lawrenciana*, *Loddigesi*, *Mossiæ* varieties (*aurea*, *aurea magnifica*, *conspicua*, *marginata*, *magnifica*, *Nevillæ*, and *superba*), *Mendelli grandiflora*, *Wagneri*, and *Warneri*; *Cypripediums Amesianum*, *Ainsworthi*, *Argus*, *barbatum superbum*, *caudatum roseum*, *calurum*, *ciliolare*, *Curtisi*, *conchiferum*, *Dayanum*, *Dauthieri*, *grande*, *Hartwegi*, *hirsutissimum*, *Hookeri*, *Peetersianum*, *selligerum*, *selligerum majus*, *selligerum rubrum*, *stenophyllum*, *Swanianum*, *superciliare*, *superbiens*, *Sedeni candidulum*, and *vernixium*.

Dendrobiums Bensoniæ, *Devonianum*, *formosum giganteum*, *infundibulum*, *Jamesianum*, *nobile majus*, *Parishi*, *suavissimum*, *Schroederi*, and *thyrsiflorum*; *Epidendrum* *cuspidatum*, *bicornutum*, *inversum*, and *vitellinum majus*; *Geodorum candidum*; *Lælia purpurata* and *alba*, *grandis*, *elegans*, and *cinnabarina*; *Lycaste Schilleriana*; *Masdevallias amabilis*, *Chelsoni*, *Harryana*, *Harryana Bull's Blood*, *atrosanguinea*, *lilacina*, *læta*, *magnifica*, *regalis*, *rosea*, *sanguinea*, and *splendens*; *Miltonias festiva* and *spectabilis rosea*.

Odontoglossums Alexandriæ, *cordatum*, *cirrhosum*, *citrosimum roseum*, *Harryanum*, *luteo-purpureum*, *nævium majus*, *Pescatorei*, *Roezli album*, and *vexillarium roseum*; *Oncidium* *concolor*, *cuellatum*, *macranthum*, *Marshallianum*, *Krameri*, *sarcodes*, and *stelligerum*; *Paphinia cristata grandis*; *Phalænopsis rosea leucaspis*, and *Sanderiana*; *Scuticaria Hadweni*; *Trichopilia crispa*, *marginata*, and *tortilis*; *Vandas Denisoniana*, *suavis Gotschalk's variety*, *teres*, and *alba*, *tricolor insignis*, *Pattersoni*, and

The Glen variety; *Zygopetalum Clayi*; *Masdevallias ignea*, *Lindeni*, *vespertilis*, *Veitchi graudiflora*, and *Shuttleworthi*.

PARISIAN HORTICULTURE.

As intimated last week in the cursory notes under the above heading there are several subjects which might be worthy of treatment in fuller detail, and as I know there are many others who, like myself, are specially interested in the matters to be considered a few paragraphs may not be altogether lost. During a visit to M. Truffaut at Versailles he remarked that it was strange what different opinions Englishmen form respecting France and French horticulture generally. Some find much to condemn in everything, and others are just as enthusiastic about what they observe. Though always endeavouring to avoid extremes I must confess to an inclination towards the condition of the satisfied visitors. Certainly I saw much to admire, and perhaps such a hurried journey and brief residence did not give an opportunity for detecting all defects, and though some of these were noted yet the general impression was favourable, and I left the French shores with a far better opinion of our neighbours both as horticulturists and as a nation than I had hitherto formed.

EXHIBITIONS—FRENCH V. ENGLISH METHOD.

There are some important differences in the scope and design of the French horticultural shows; the one recently held in Paris may be taken as fairly representing the best efforts in that direction. First, with regard to the schedule, the classes are more numerous, a greater diversity of objects is provided for, and the effort is evidently to render the exhibition as representative of horticulture as possible. Then no money prizes are offered, all the inducements may be said to be honorary; the medals awarded, though of different grades, not representing any value approaching to the money prizes given in this country, so that the exhibitors do not obtain any pecuniary return for the labour and expense incurred. In addition, however, to the medals in the respective classes there are the *Prix d'Honneur* offered by the Minister of Agriculture or some other important functionary, which are greatly coveted and most highly esteemed when secured. These are awarded to the exhibitors who contribute the best, taking the show as a whole, the merit of their productions being solely considered. There are thus two forms of competition, first in the classes individually, and secondly throughout the exhibition, and I have no hesitation in saying that these medals are more highly valued by the recipients than many of the money prizes are here.

This system possesses many advantages where the exhibitions are mainly supported by the trade, as they are in Paris, but strangely enough it seems inapplicable to those where amateurs are expected to compete, as at most of our English shows. The attempt to introduce such a plan at Manchester or York, for instance, would lead to immediate failure, and it has been also proved in London too, as immediately the prizes are reduced in value the amateur exhibitors decrease in number, and the shows become what are not inaptly termed "trade bazaars." They may not be less beautiful than formerly, they are quite as attractive to the general public, but they are deficient in the interest that only genuine amateur enthusiasm and competition can impart. The nurserymen know this full well, admit the defect, and deplore the decadence in amateur competition, which they rightly attribute to the small encouragement afforded except by special societies. The National Rose and the National Chrysanthemum Societies have no difficulty in securing amateur exhibitors in abundance to form the foundation of their shows, then the trade exhibitors constitute a welcome and appropriate addition, but no Show formed by nurserymen alone can be regarded in England as fairly representative of the horticulture of the country.

In France matters are very different. There are not the same numbers of wealthy and middle class amateurs engaged in gardening as a pastime. The requirements, the conditions, and the modes of supply are widely different. Horticulture in all its branches is mainly left in the hands of the trade. The flowers and plants so extensively employed in decoration are mostly purchased in the markets or from nurserymen, and not, as is so frequently the case here, grown at home for the special purpose. This is mainly due to the fact that in and around large cities in France, but especially in Paris, there is not the same home life as in England. There is more living in public; the cafés and the hotels are the centres of city life, and ample evidence is afforded that the French, or at least the Parisians, are not a stay-at-home people. Villa gardens as we know them are comparative exceptions, but to some of these exceptions I shall have occasion to refer again. Sufficient, however, has been said to indicate the difference in the conditions relating to shows in France and in England, and if it is added that

our continental friends fully equal ourselves in admiration of floral and plant beauty it will be seen that the practical support of horticulture rests mainly in the hands of the trade. The societies are dependent upon nurserymen for their exhibitions, and therefore act wisely in encouraging them to the utmost.

With regard to the comprehensiveness of the Shows we might fairly take for comparison the Royal Horticultural Society's Exhibition in the Temple Gardens, which opened on May 28th, and the corresponding Exhibition of the National Horticultural Society of France, which closed at Paris on the preceding day, and we are compelled reluctantly to admit that the advantage in this respect was in favour of the French Show. Except in the case of special societies that are devoted to certain departments, the chief object of any large general society should be to render its exhibitions comprehensive and thoroughly representative of the horticulture of its district, county, or country, according to the scope it allows itself. This purpose cannot be attained if only one or two departments are included, successful as it may be in all other respects. As a flower and plant show that at the Temple was admirable, and the space at command would not, perhaps, have permitted an extension into other departments, consequently it is no fault of the directorate, but it serves to illustrate the principle. The plants in value and beauty were far superior to those in Paris, such a display of Orchids has probably never been seen in France, yet the Paris Show was essentially representative of its horticulture, and that at the Temple was not in any sense equally representative of English horticulture. A thoroughly satisfactory annual display of this character here would be a formidable undertaking, but there is no reason why something of the kind should not be attempted periodically, and the beneficial effects would be widely felt. The industry and art of horticulture are extensive, but one or two departments should not be enlarged while all the rest are neglected. Gardening appliance and implement manufacture has become of great importance, and considerable advance has been made in recent years, yet, except in a few of the larger provincial shows, these are rarely represented at English shows. At Paris a large space of ground was occupied with these exhibits, and it was evident that to the horticultural visitors that section afforded scarcely less interest than the floral display.

The art and literature of gardening also now hold highly important positions, yet in England, where both may be fairly said to flourish in an exceptional degree, they are systematically excluded from nearly all exhibitions. It is true a few attempts have been made to provide something of the kind, notably at Liverpool some years back, but it was done in such a half-hearted way that as regards the literature at all events it was very unsatisfactory. At some shows prizes or medals have been offered occasionally for works of art, and at Chiswick, which is near the artistic neighbourhood of Bedford Park, exhibits of a pleasing character were several times obtained. We are promised also that at the National Chrysanthemum Society's Centenary Festival next November an attempt will be made to show what the artists, amateurs and others, have accomplished in depicting the "Autumn Queen." This, however, is only a partial advance, and it would add materially to the interest of any large show where adequate accommodation could be provided if some encouragement was afforded to the artistic department. At South Kensington a few years ago an accomplished artist, Mr. Hughes of Wallington, was induced by Mr. Smee to exhibit a collection of Orchid paintings, and a very interesting display they provided. What a show, too, would Mr. Moon's beautiful originals of the same kind afford. Then, too, the photographing of flowers has advanced so rapidly that this alone could be made an important feature. Something of all these sections was included in the Paris Exhibition, as well as books, papers, pamphlets, dried plants, and hosts of other "odds and ends," besides something of all in season of plants, flowers, fruits, and vegetables.

It has been mentioned that in the schedule a great saving of money is effected by offering medals as prizes, and much of that is consequently expended upon the preparation. In a French show this is of the greatest importance, and though we are credited on this side of the channel with being slow, it would not suit our exhibitors to spend several days in preparing for a show of a week's duration. This is an example of thoroughness, however, which our friends display in many things, but for which we do not give them due credit. In the case of the "Pavillon," devoted to the show at Paris, the ground is laid out in beds and mounds specially for the occasion, covered with turf, with spacious winding paths between the beds, and then all the larger specimens are arranged directly upon the turf. At the sides "shelves" of damped soil are raised, which are covered with turf closely pegged down, and though it certainly looked very probable that some of these perpendicular walls of turf would come down when the plants were

arranged upon them, I did not see any accident of the kind. They are unquestionably superior to the dreadful staging so often seen in English shows, which is quite bad enough when draped with baize or other material, but which is occasionally left in all its hideous bareness to disfigure a good exhibition with a display of rough boards and a perspective of tressels and supports beneath. The managers of shows in this country are gradually awaking to the need for reform in such matters, and that surroundings and accessories should be rendered as appropriate as possible, not to awaken disgust by disagreeable contrasts. Few who saw the groups of Orchids arranged in mounds on the ground in the great tent of the R.H.S. Liverpool Show would forget the effect produced. Much better results could have been produced at the Temple Show recently if the magnificent Orchids there had been arranged with Ferns on mounds or slopes. This was, of course, impossible there, because it would have interfered too much with the lawns, but it is always regrettable to see fine plants crowded together and half their beauty lost.—LEWIS CASTLE.

(To be continued.)



EVENTS OF THE WEEK.—To-day (Thursday) the fifty-first anniversary Festival of the Gardeners' Royal Benevolent Institution will be held at the Albion Hotel, Aldersgate Street, when the Treasurer, Mr. Harry J. Veitch, will preside. The dinner is announced for 6 P.M. On Wednesday, June 18th, the York Floral Fête will open and continue until Friday of that week.

— THE WEATHER IN THE METROPOLITAN DISTRICT has been chiefly distinguished during the past week by the frequent rain that was most welcome in the majority of districts for garden crops generally. The temperature has also been higher, and Monday was an uncommonly fine day. The effects of the frost are more evident now. Potatoes are much cut in some places and the young fronds of Bracken on some of the commons are browned and killed. Fruit crops are not so promising as a week or two back.

— THE ROYAL HORTICULTURAL SOCIETY.—In respect to the invitation of Mr. D. MORRIS of the Royal Gardens, Kew, and Treasurer of the Royal Horticultural Society, that we should send a representative to inspect the Society's books for ascertaining the income and expenditure of the Drill Hall in Westminster and of the conferences at Chiswick, we take the earliest opportunity of announcing that the information has been acquired in the manner suggested. The matter is only alluded to now with the object of acknowledging the extreme courtesy of Mr. Morris to our representative, who reports that every facility was afforded him in the inspection, that the system of book-keeping introduced by the Treasurer is admirable, that every item is recorded, that all charges are debited to the departments, and that the accounts are, as we anticipated, kept with great accuracy. We thank Mr. Morris for his effective co-operation, which has enabled us to secure particulars of considerable interest to the Fellows of the Society not otherwise obtainable.

— ON Saturday, June 7th, MR. JOHN CHEAL, the respected senior partner in the firm of Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, attained his ninetieth year, and in recognition of the event the staff presented him with a testimonial accompanied by a suitable address. To celebrate the occasion the firm also arranged for an excursion to Brighton on Monday, when the employes, to the number of sixty-seven, were entertained at dinner, and a most pleasant day was spent. They further provided a tea and entertainment at Crawley on Tuesday for the wives and families of their staff.

— LAXTON'S NOBLE STRAWBERRY.—We had a grand dish of this fine early variety quite fit for the table, June 3rd. They were part of the crop swelling off on comparatively small plants put out on a warm border last August, and the result is startling to a good many who have seen them. As a forcing variety it is a failure, and as far as we are concerned, will not be tried again, the quality being wretched, and altogether different to the same variety grown in the open. The crops on quite young plants are much the earliest and best in every respect.—W. IGGULDEN.

— WE received some time ago samples of "THE PERFECT WEED KILLER" and "SUMMER SHADING" from the manufacturers, the Horticultural and Agricultural Chemical Company, Glasgow, and after having applied them in the way directed, we can speak of both in the highest praise. For gravel paths especially the former is admirably adapted, as it removes every trace of weeds. It is well, however, in cases where there are strong tufty weeds to have them removed before the application is made. The summer shading answers its purpose well.

— WEED KILLERS.—Few labour-saving appliances have been of greater service to gardeners than these useful mixtures. What a nuisance it was at the busiest season of the year to have to spend time and labour in clearing the gravel paths from weeds, especially with the knowledge that it would have all to be done over again in a month or two. Most makers of these chemical preparations advise that they be applied when the gravel is damp, a suggestion well worth attending to. If it be dust dry a failure is likely to occur, unless a considerably larger quantity be used. The paths should be just damp, not wet, and the mixture should be put on, if possible, when no heavy rain is likely to follow immediately.—W. R. R.

— THE WEATHER LAST MONTH.—May was changeable, with some showers, several bright days and three clear days. We had thunder on the 6th, 7th and 19th. Rain fell on thirteen days, the greatest daily fall being 0.58 inch on the 10th, and the total fall 2.53 inches. The barometer varied considerably; the highest reading was 30.35 inches at 9 A.M. on the 22nd, the lowest 29.38 inches at 9 A.M. on the 11th. Thermometer—highest in shade, 75° on the 24th; lowest, 33° on the 31st; lowest on grass, 29° on the 1st. Mean temperature of the month, 52.44°. Frost recorded on grass nine days. Wind in an easterly direction seventeen days. The garden spring running 20 galls. per minute May 31st.—W. H. DIVERS, *Ketton Hall Gardens, Stamford.*

— FUCHSIA DUCHESS OF KENT.—Mr. G. Bunyard sends us a coloured drawing of the above variety, and remarks, "This was a chance seedling, and the first large flowered variety with white tube sepals. It created quite a sensation when sent out about 1846 at 7s. 6d. each. The man who saved the seed is still in our employ, and is the best label writer we know; but the sort has been lost. Mrs. Marshall comes nearer to it than any other we know. Venus Victrix was the first white sepalled kind, and Mrs. Storey, we think, was the first with a white corolla. At the time Duchess of Kent was raised the following were grown as the best of their day:—Target's 'Grandiflora,' Microphylla, Globosa, Cylindrica, Chandleri (light rosy crimson), and Palmeri (the largest dark variety)."

— GLOXINIAS AT MESSRS. J. VEITCH & SONS', CHELSEA.—At this nursery a house in two divisions 120 feet long is devoted to the culture of Gloxinias. The first part is full of the plants now in flower, which number over 1000, the lower part being occupied with the young named varieties and unflowered seedlings, which will flower later in the season. There are over 2000 plants in this division. The plants are noted for the rich and diversified colours of the flowers, their free blooming, and compact habit. We saw examples in 40 and 48-size pots with from eighty to a hundred flowers and buds on each, ranging from the deepest crimson scarlet, deep purple, pure white, and others of various shades of colours. The names of the most noteworthy varieties in flower were the following:—Mrs. J. Donaldson, a new variety, rich crimson scarlet, shaded with maroon at the base and upper part of the throat, of good habit and free flowering; Orestes, another of the rich maroon crimsons, a very brilliant variety; Sunbeam, Court, and Flambeau are all rich coloured varieties of the Mrs. J. Donaldson type; Clarinda, distinct, throat white, spotted with crimson, and white margin; Hermia, a finely formed flower, with limb of a deep violet purple shaded with maroon, white throat spotted with crimson; Cygnet, pure white, with segments of limb bordered with violet, a large well formed flower; Virginalis, pure white, a very fine variety, and free flowering; Purity, another fine white of good substance; Octavia, light blue, densely spotted with violet; The Moor, a very large dark purple flower, and a variety much admired; Nestor, a very large flower, open throat, which is white, densely spotted with carmine, and having a zone of maroon scarlet at the entrance of throat, a novelty. Amongst the "spotted" varieties, a beautiful class, very distinct, are Ariel, Lady Marriott, Cordelia, Jubilee, Marchioness of Abergavenny, Clytis, Miranda, and Coronet. In the collection there are about seventy or eighty distinct varieties.

— IN my notes on HERBACEOUS AND ALPINE PLANTS in last week's Journal I named Messrs. Merryweather as the firm from whom I had my Primrose seed. It should have been Messrs. Frettingham of Beeston, Notts.—D., *Deal.*

— NATIONAL ORCHID SOCIETY.—Information has reached us to the effect that the establishment of an Orchid society in London is being considered by admirers of those plants, but nothing definite is communicated to us on the subject.

— LONDON PARKS AND GARDENS.—The London County Council have passed a resolution that a professional landscape gardener of high class, possessing technical knowledge, business capacity and experience, be appointed as superintendent of parks and open spaces, which now embrace an area of 3000 acres. The salary proposed is £600 a year.

— PANSIES.—A small but very useful essay on the cultivation of these flowers has been sent to us by an accomplished florist, who regards it as a reliable guide. The author is Mr. Charles Kay, Gargunnoch, Stirling, who thoroughly understands the flower he loves and grows so well. The information imparted is soundly, clearly, and concisely recorded.

— PRUNING NEWLY PLANTED APPLE TREES.—I am surprised at the note from a correspondent in a late number of the Journal that this has been found unsatisfactory. My own purchased trees have certainly grown the better for it, as is reasonable, and there seems a special advantage in the case of a new variety. I bought a standard of Bramley's Seedling last November, which was new to me and to the locality, and now not only has the pruned tree made as long shoots as established ones, but I have also four grafts merrily growing in another part of the garden.—W. R. RAILLEM.

— FRUIT FARMING.—A lecture delivered on this subject by Mr. Cecil H. Hooper, Pains Hill, Surrey, to the agricultural class at the Edinburgh University has been published in pamphlet form from the Transactions of the Highland and Agricultural Society of Scotland. It is handy and useful, a great deal of information relative to the cost of planting and the several operations connected with the subject being compressed in the twenty-six pages. It appears to be a plain matter of fact production, and Mr. Hooper must have laboured diligently in acquiring various details, chiefly, we presume, from Kentish growers. No attempt is made to magnify profits from growing fruit, but the object of the author appears to have been to obtain and disseminate exact information on the subject.

— ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held on Wednesday, the 18th instant, at 7 P.M., the following Papers will be read:—"On the difference produced in the Mean Temperature derived from daily Maximum and Minimum readings, as depending on the time at which the Thermometers are read," by William Ellis, F.R.A.S. "On the Distribution of Barometric Pressure at the average level of the Hill Stations in India, and its probable effect on the Rainfall of the cold weather," by W. L. Dallas. "On the relative prevalence of different Winds at the Royal Observatory, Greenwich, 1841-1889," by William Ellis, F.R.A.S. "On some recent variations of Wind at Greenwich," by Alex. B. MacDowall.

— STRAWBERRY NOBLE.—So far as I have noticed Noble has not created a very great sensation as an early forcing Strawberry, some complaining that it does not set freely at the dull, sunless period, while the quality as a forced fruit does not with others give entire satisfaction. Although its reputation has thus far suffered in the hands of those who have relied on it for early forcing, it certainly has claims to many points of favour as an outdoor sort. Notwithstanding that our plants were secured late last summer, its early and free bearing qualities are quite pronounced, being a long way before other sorts in earliness. I saw in a large garden recently an excellent crop rapidly advancing towards maturity, growing on a south and highly sheltered border, and although only yearling plants, the crop is heavy, the fruits promising to attain an unusual large size. The great demand for this variety has caused disappointment to many purchasers, because the plants supplied, except perhaps in the case of those who ordered early, are very small, consequently no estimate of its value can be proved this year; but when thoroughly established it will no doubt secure for itself a general popularity as an early and large fruited kind. Opportunities will soon be available for deciding on its merits in these respects by new cultivators, and probably favourable verdicts will find a place in the pages of the *Journal of Horticulture*.—W. S.

— THE first ENGLISH-GROWN NEW POTATOES of the season seen in this part of Lincolnshire were on Saturday last sent to the Horncastle Market by Mr. T. Kime of Mareham-le-Fen. They were very quickly all sold at 6d. per pound. The Potatoes on sale were of the variety known as Sharpe's Victor, the earliest kind known. It is a circumstance unprecedented in the Horncastle district for new Potatoes to be for sale in the market in the month of May. Herberto the 12th of June has been regarded as the earliest date, but Mr. T. Kime, who enjoys the reputation of being one of the greatest authorities in Lincolnshire on Potato culture, has beaten the record by nearly a fortnight. The Potatoes were grown in a field at Mareham-le-Fen.—(*Spalding Free Press.*)

— RESTORING SHRIVELLED FLOWERS.—I recently received a box of Pansy blooms, sent to me to see if correctly named, but through being laid in a small box without any green leaves, damp wadding, or moss, or something to assist in keeping the flowers fresh, they were shrivelled so as to be entirely beyond identification. I placed them in a basin of cold water, and a plate over the top to exclude air, and on examining them some hours afterwards they had resumed their normal condition and were readily recognisable. This hint may be useful, and I wish also to add that cut flowers in rooms and at exhibitions for more than one day could be kept for a long time in good preservation, if taken each night and placed bodily in cold water, drawing them through it, and letting them rest in the water all night. It is painful to see cut flowers at shows, and visitors pay to see them in good condition, rendered unfit to be seen for want of a little care and attention.—D. S. H.

— ARCHED WALLS FOR VINE BORDERS.—Many gardeners of the present day are strongly in favour of arched walls for Vine borders. Generally speaking it rests entirely with the gardener who happens to be in charge when new houses for Vines are being built, as any peculiar ideas of the gardener can then be carried out. At the present time we are having a long range of glass houses erected, among them being vineries and Peach houses, and I am thinking of not having arched walls for Vine or Peach houses. It is well known nothing can be better than inside borders for early Vines, as the roots are then in a suitable temperature. But with regard to intermediate or late houses I cannot see why the roots of a Vine should be half inside and half out, or have the opportunity of going into two borders. By so doing the roots must be in two temperatures. Either have the roots of each Vine altogether inside or out; then a man can judge when to attend best to them, and the Vines must be more satisfactory. I should like the opinion of others on this subject, as the chief reason for arched walls may be of interest to many.—A. J. L.

— AN AMERICAN NURSERY.—Mr. Thomas Meehan, one of our most active and intelligent representatives in Common Council, has been and continues a man of success in whatever his varied resources are applied to. He wields a prolific pen, is fluent and pleasing of speech, and whether he skims from the surface of social and political affairs or dives into the depths of scientific research he is always interesting and instructive. It is the combination of rare qualities—no mere accident—which has made our townsman to follow safely in every one of his undertakings, and at the same time a safe man to follow. The practical and visible evidence of his enterprise is probably more familiar to many in what are known throughout the country as Meehan's Nurseries. Originally the nurseries were located on Main Street, and extended through to Chew Street, occupying the long strip of ground since divided by Meehan Avenue. Later the large business was removed to the present situation on Cbew Street, back of Church, and now the nurseries extend from Cbew Street to Stenton Avenue (the old township line), a depth of nearly three-quarters of a mile, and in one of the most attractive portions of northern Philadelphia. That these are the largest nurseries within the limits of the city is certain, if not the largest in the country. But apart from the remarkable success thus achieved the nurseries have opened a field of employment for a large number of persons, a living for many families in fact, and in this we are sure the Messrs. Meehan & Son find not the least of their gratification. Success seems to have been perched on their banner from the start, and if that part of the city is not very soon hemmed in by brick and stone walls it is hard to say where another decade will find the nurseries spreading to.—(*The Germantown Guide.*)

— PANSY SHOW IN LEICESTER.—An excellent Show of these favourite flowers was held on Saturday last, June 7th, in a large detached room belonging to Mr. H. Jordan, the Butcher's Arms Inn, Cburchgate, Leicester, and was the first Show of the kind which has

been held in the town for many years past. Mr. Jordan has long been well and widely known amongst Leicester townsmen as an ardent florist, and more particularly as a successful amateur cultivator of the *Cbrysanthemum*. Having, therefore, recently entered into the occupation of the above licensed premises, having such a suitable room at the back thereof for the purpose, and knowing how extensively and well the Pansy is cultivated by so many allotment holders in and around Leicester, he at once conceived the idea of inaugurating a Show. A number of prizes were offered for twelves, sixes, and threes, cut flowers, in both the classes of show and fancy flowers, which were responded to by numerous entries, and, as above stated, a good Show was the result. The Rev. E. N. Pochin of Barkby Vicarage, whose name is so well known amongst rosarians, and who has of late years been an ardent and very successful raiser and cultivator of the Pansy, was present during a good portion of the afternoon, giving counsel and advice to the numerous growers and exhibitors present, and strongly advocating the formation of a Pansy Club or Society, the object of which should be to meet together periodically for the purposes of reading papers, cultural discussions, and the comparing of results of such culture in the flowers shown at each such meeting, be promising them all the assistance in his power to give in so doing. Mr. Jordan also generously offered the use of his room rent free for such purposes, so that it seems not improbable the rev. gentleman's suggestions may be carried out, most of the growers and exhibitors present expressing themselves as being favourable to such a project. In addition to the Pansies shown, the room was tastefully decorated by flowering plants mostly from Mr. Jordan's own greenhouses. Fine collections of cut Pansies not for competition were sent by Mr. Wm. Sydenham, Water Orton, near Birmingham, and Messrs. Biddles & Co., Forest Road, Loughborough.

— EXHIBITION OF THE BATH AND WEST AND SOUTHERN COUNTIES OF ENGLAND AGRICULTURAL ASSOCIATION.—This Show was held at Rochester on a commanding position near Fort Pitt, embracing views of the shipping in the River Medway, and Cobham Park and the well-wooded country near, and it was well attended on the shilling days. Horticulture was not represented on this occasion, though we noticed a few good Begonias from Messrs. John Laing and Sons. The seed trades were represented locally by Messrs. Horsnail and Reynolds; and by Messrs. Webb & Sons of Stourbridge, Messrs. Dicksons (Limited) of Chester, and Mr. Hunter of Cbester, who exhibited specimens of Grasses, Clovers, &c., in growth. Mr. Conway C. Warne (successor to Mr. Matthews), of Weston-super-Mare, had a very good exhibit of garden pottery. The Aylesford Pottery Company had a pretty cricket house, which was very tastefully decorated with plants and many-coloured tiles. The horticultural builders were represented by Messrs. Foster & Pearson of Beeston, who showed their excellent patent frames and greenhouses; and Mr. Newton of Hitchin showed his patent iron houses, which exhibit many excellent arrangements for ventilation, &c.

IS PRIMULA OBCONICA POISONOUS?

FROM time to time the various opinions expressed with regard to the poisoning influence or otherwise of this plant have not appeared to have any definite result. Some, indeed, give no credence whatever to the statement, while others more generously inclined have stated that they have no reason to discredit the statements of others in the matter. One writer in a contemporary has gone the length of saying that if it were poisonous he should still continue to grow it, though I doubt very much had he experienced as many sleepless nights as I from the effects of handling this plant, if he would not alter or at least modify his ideas. Few people indeed would care to take up the pot culture of the Stinging Nettle were it ever so beautiful, for they know the consequences full well, yet at the present moment I would sooner handle a bunch of the Nettles than touch the *Primula* in question, and for this reason that the sting of the Nettle is more easily got rid of than the inflammatory effects produced by the leaves and stems of the latter. Another difference is this, the Nettle sting affects the parts only that come in contact with the plant, but in the case of the *Primula* it is liable to be conveyed to any part of the body that is touched by the hand already affected, and in this manner my eyes, nose, and lips have suffered to a considerable extent.

Since its introduction I have been an ardent admirer of this charming Primrose, and was rarely, if ever, without a few of its spikes of flowers in water, apart from its endless flowering in pots. I never allowed a visitor to come and go without sounding the praises of it, therefore in calling attention to what I fully believe to be a fact I have not the slightest desire to unnecessarily alarm or deter anyone from growing it. I also believe that these unpleasant results are only experienced by certain individuals, and that under certain conditions. For instance, the amateur with only a cool house is not likely to be a

sufferer to the same extent (if at all), as he who has houses heated to stove temperature, and who may perchance come in contact with the plant while his body was thus temporarily over-heated, for then it is, I feel sure, that the evil ensues. For nearly six weeks at a time have I been a sufferer from what for want of a name I had called "my disease," and for a whole week together hardly closed my eyes in sleep, from the fact that the irritation and inflammation was always accelerated with increased warmth of the body. Local doctors as usual ascribed that the "system was out of order, &c.," but all their physic and advice made not the slightest improvement in this respect, and at length one candidly told me he could not understand it in the least. The symptoms briefly were—first, swelling of the fingers, followed closely by unusual redness of the skin, during which stage the irritation seemed at its highest, this was also succeeded by numerous small watery pustules on all the affected parts. Fifteen months ago, when suffering from the worst attack I have had, and being tired of consulting local doctors, I betook myself to one of the London hospitals for skin diseases. Here I was subjected to a minute examination of all the parts affected, and after some forty minutes the disease was classified under erythema, but all the doctors present did not agree on account of some of the characteristics of this family being absent in my case. About that time I noticed some references in the horticultural press concerning this *Primula*, and comparing the symptoms then expressed with my own case, found they agreed exactly, and at length I was so convinced that I gave up handling the *Primula* altogether.

The result is this, that when I keep from the plant I am free from the disease. Some readers may wonder why I have not communicated these facts sooner, and my reply is that I did not desire to speak till I felt I could do so authoritatively, and the following is the result of a careful investigation ever since I made the acquaintance of the plant in question. This was in the summer of 1883, and I had my first attack simultaneously. The local physician regarded it as a species of urtica, but nothing he gave me afforded any relief. This occurred in Nottingham, which locality I left the following year. For two years after I did not grow this *Primula*, and was quite free from disease, but during the past four years I have grown it largely, and suffered largely too. Of late I have taken particular notice if I chanced to touch a leaf or stem, and if I did the irritation would of a surety appear within twelve hours. Since the opening of the present year I have twice touched this *Primula*, once experimentally and once accidentally, and in each case the disease appeared during the evening of the same day, and I now admire the plant at a safe distance. I may remark that none of my men suffer in the same way as myself from touching this plant, a fact which has caused me to weigh very carefully every atom of evidence. Happily, however, my visits to the above named hospital were productive of good, for they gave me an ointment which considerably lessens the irritation and consequent inflammation.

Had I been aware earlier of what was causing the mischief I might sooner have found relief. At first, however, I was for weeks the reverse of improved under the hospital treatment, and I can only attribute my continued suffering to constantly handling the plant, ignorant of the consequences. In conclusion I can only add that anyone having this plant and suffering from the symptoms I have expressed will do well to avoid contact with it and note the results. Anyone may have the recipe for the ointment by enclosing stamped addressed envelope through the Editor.—J. H. E.

USEFUL PLANTS FOR BEDDING.

THE form and style of bedding and the plants employed vary in different parts of the country owing to the nature of the soil and climatic condition of the localities, and to suit different tastes. Therefore it behoves all young gardeners to change places as soon as they have had a season or two, and have mastered the difficulties in one district. Not only do the means of production vary through the causes named, but also through the different ways of carrying out the work.

Young men may be trained as journeymen or foremen in gardens where sub-tropical bedding is done, or bedding out on the old style, and at which place Grapes may be also well grown. Yet it is necessary for him to get a training in carpet bedding with spring and winter bedding; Pine, Melon, Orchid, and plant growing; Fig, Plum, Peach, and Cherry culture under glass; and outside with a general routine of outside work. If this is not possible in one place it may be in another, and is in the reach of most young men. There are gardens, however, where gardening is carried out well in all its branches, and one of these is Basing Park Gardens, and under the skilful gardener there, Mr. Wm. Smythe, I served several years as general foreman.

SUB-TROPICAL BEDDING.

This style of bedding is very effective, but plenty of glass accommodation is necessary for storing or starting and hardening the plants. If the pleasure grounds are extensive and small beds of Conifers or ornamental shrubs are dotted about, this is the position for sub-tropical plants. On the other hand, if the grounds are small and well sheltered one or more beds for the centre can be used for that purpose; too many would not be advisable, as it would give the grounds a heavy appearance. The sides, borders, ends, or corners, if sheltered from winds, can be filled with these plants, which would show up well and act as a good background for dwarfed bedding plants. The following are amongst the most useful sub-tropical plants.

Wigandias.—The seeds should be sown in February, pricked off

when large enough, and grown along in a good loam in a warm house until the plants are a fair size, when they should be stood in a cool greenhouse or pit preparatory to be finally hardened off outside in a sheltered position. The end of May for the south and June for the more northern counties would be a good time for planting out.

Cannas of sorts are effective for massing, as beds can be planted of various colours. They can be equally as well used with most of the sub-tropical plants—viz., various *Eucalyptus*, *Abutilons*, *Amaranthus*, *Humeas*, and *Zea japonica*. Seed should be sown in February. These will come in for lower positions than those grown from the divisions of the old stools. Soak the seed in tepid water twenty-four hours previous to sowing. The best method is to sow single seeds in thimble pots in a mixture of well decayed leaf mould and sand. Stand them in a forcing pit. When about 4 inches high they can be placed into 48-size pots, retained in the forcing pit till they are well established, when they can be removed to an intermediate house preparatory to further hardening, and finally hed them out in June. If they have been in shady places they are likely to be badly scorched when first planted. This is also often caused by watering them over the foliage late in the morning, globules of water concentrating the rays of the sun, therefore burning the leaves.

Humea elegans, a graceful indispensable sub-tropical plant, has a light effect when planted in beds, and breaks the flatness and sameness that often prevails in large pleasure gardens. For instance, if the shape of the bed is a circle, describe in it a hexagon, a pentagon, or even a square, and at each of the corners, or where the lines intersect, plant *Humeas*, filling the spaces with *Begonias*, *Petunias*, *Dracenas*, *Amaranthus*, *Abutilons*, or any of the succulents, and edge with suitable plants such as *Golden Harry Hicover Pelargonium*, *Lohelia*, *Ageratum*, or *Pyrethrum*. If the bed is square or oblong, a single row down the centre, or form a square or oblong, and place a *Humea* at each corner and one in the centre, and fill up with suitable plants. It must be borne in mind that plants more than 18 inches to 2 feet high will spoil the beauty of the *Humea*, and that the *Humeas* must not be placed too closely together, otherwise their graceful form will be spoiled. The seed of *Humea elegans* should be sown the preceding summer and treated like *Eucalyptus*, but with less heat. Ordinary greenhouse or cool frame treatment will suit. If treated too warm it will throw the flower too early in the spring.

Montagnea bipinnatifida.—This plant is a favourite of mine, and I have always used it in beds by itself for single rows in oblong or square beds. The seeds should be sown in February, placed in heat, and treated in every way like the *Cannas*. The way I have always propagated these plants for my own use is from cuttings or side shoots in the autumn, compost being a light friable loam, placed in the propagating frame. After they have rooted they can be grown along in an intermediate house during the winter. Cuttings can be propagated from these in the spring if necessary; they should be gradually hardened off and planted out in June.

Solanums marginatum, robustum, and Warscewiczii.—Sow the seeds in March either in small pots or in 48's or pans. Prick off when strong enough. After they are at home in their new quarters they can be removed to cooler houses previous to hardening them off in frames. Plant out end of May or beginning of June. While growing them in pots, a good sharp turfy loam with leaf soil should be used, and if a little cowdung specially prepared—i.e., taken while fresh and laid to dry out of the way of insects, as much damage is done where manure is used that has been exposed and filled with the larva of various pests. It can be stored in a Mushroom house, or the top of a boiler, so as to thoroughly dry off the water—it will be available for every kind of plant stove or greenhouse, *Ca'lanthes* in particular, as well as sub-tropical plants. It should be ruffled through a fine sieve before mixing it with the soil. I have grown rare and valuable specimens by the aid of this manure, when others have tried every other thing their experience directed them to, with no other result but failure.

Eucalyptus globulus runs other plants very hard for first place in sub-tropical gardening; pirating the terms of the quacks—no garden is complete without them. A very large hed in the centre, or at each end of a large terrace, or where two or three terraces meet at right angles, are very imposing with *Eucalyptus* for the centre, backed up with other ornamental and variegated plants, graduated to the edge of the hed. Some of the fine groups in our large shows can be equalled, if not surpassed, with the well-arranged hed of various hues, overhanging each other in graceful form. *Eucalyptus* seed should be sown the preceding year to be of much use for the position I have given it. Raise the seed in heat in the compost mentioned for *Solanums*, with plenty of sharp sand added, potting them along, and retaining them in heat until they are 6 or 9 inches high, when they can be removed to cooler quarters to winter. These should be placed into 24's during the spring to get well established for hardening previous to planting out. My experience of hedding is greater than my ability for writing, but I pen these lines, and shall continue, with the view of assisting some to produce an effective display more pleasing than the ordinary hedding.—G. A. BISHOP, *The Gardens, Wightwick Manor*.

GIGANTIC BROMELIADS.

MOST of the ornamental Bromeliads grown in gardens are of moderate size, and some are even diminutive, but in the Puyas of Peru and neighbouring regions we have the giants of the family—not perhaps so

beautiful as many others, but of noble habit and very distinct. On a grand example was exhibited at the R.H.S. Temple Show recently under the name of *P. chilensis*. It was grown in the open air at the Tresco Abbey Gardens of the Scilly Isles, and placed in front of the royal dais

P. lanuginosa, that the plants in the Scilly Isles, which flowered in 1872, and were portrayed in the columns of a contemporary as *P. chilensis*, and this seems to refer to the same plant as that exhibited. Some of the Puyas attain a great height; for instance, *P. gigas* is



FIG. 75.—A GIGANTIC BROMELIAD.

its tall flower stems rising from a dense rosette of long leaves had very imposing effect. Of this plant a representation is given in fig. 75. It has been depicted elsewhere under the name given above, but according to Mr. J. G. Baker the correct name is *Puya lanuginosa*. In his monograph of the Bromeliaceæ he mentions, under the description of

said to grow 20 or 30 feet high, while another has been described by a traveller as 33 feet high, and bearing a panicle of 8000 flowers. Of the true *P. chilensis* a painting is included in Miss North's gallery at Kew, and it is one of the few that possess any economic use, for it is said the stems are cut up and used as corks or bungs, the spines being

employed by the natives as fish books. In most of the species the flowers are green or blue, those of *P. lanuginosa* being a peculiarly bright shade of green.

PEACH GROWING IN FLORIDA.

I HAVE read "Waldo's" communication on page 458, and in reply I still maintain what I stated previously on page 316—viz., that Florida is not a favourable country for Peach growing. My visit was by no means a flying one, as "Waldo" supposes; but what I wrote was intended for Florida on the whole, and not for any small portion of it. Your correspondent may well pass over my remarks about white sand, bottom heat, &c., as they are facts which are not to be denied, and anyone who knows anything of Peach culture knows that the trees will not succeed and give a good crop of fruit under the circumstances I stated. I was not at all surprised to see several plantations commencing to flower early in January and then drying up again. On January 27th some of them had a few small Peaches; those on the Peen Tau variety were almost as large as Walnuts; but on all the trees they were few and far between. There were no leaves worthy of notice. The majority of the flower buds had not started, and were dead. This was by means surprising, considering that no rain had fallen since September with the exception of 0.3 of an inch in October and 0.8 in November. The weather was bright and hot, and continued so until March. The Peach trees could not possibly bear well under these conditions, but I quite admit they would make a good growth when the rainy season came in May and June. Everything grows then at a tremendous rate, but that comes too late for the dead flower buds on the Peach trees.

I can understand the roads getting firmer in the wet season, but that would not make up for the inconvenience of seven or eight months with nothing but 4 inches of dusty sand to walk in; and I say again, if anyone contemplates settling in Florida, let them get as near to a railway depôt or station as possible. Twelve or fifteen miles away would be bad enough in this country where the roads are good, but with Florida roads for that distance people would soon wish themselves back again.—W. H. DIVERS, *Ketton Hall Gardens, Stamford.*

CARNATIONS FROM SEEDS.

IT is a common practice to raise Carnations of the border type from seeds, some making it an annual custom, but it is not so prominent a means for securing a stock of the perpetual or tree varieties. The reason probably is that a rather large percentage come single; the labour involved in pot culture being a greater consideration than is the case when they can be sown and planted on a small plot outdoors. However, if such results as recently came under my notice could be relied on, it is a matter of surprise that they are not more often obtained by seed-raising. In the instance referred to, flowers equal to and even surpassing many named kinds were presented. I could scarcely believe such splendid blooms in varying shades of colour were possible from such a cheap source. Among them was one identical with *Pride of Penshurst*, another and deeper yellow form equal in size to a good bloom of the popular *Malmaison*, which in itself was quite worth the cost of seed and trouble of growing them. Another plant produced an exceedingly compact and pure white bloom. The usual striped Carnations were represented, too, in several shades of colour, and all were characterised by that fulness so desirable in these favourite buttonhole flowers.

From seed these plants assume quite a different habit of growth to those grown in the ordinary way by cuttings the first year, this being dense, and rising but a few inches above the pot's surface, which adds materially to their value for conservatory decoration. What is necessary, and was furnished in the case of those under notice, is a well ventilated and very light structure for insuring robustness, and this fact undoubtedly contributed greatly to the excellent texture and fulness of the flowers. Although these were secured from a spring sowing, there yet remains time for those who desire plants for next year's blooming to sow, and by careful and suitable treatment material for a late spring display might be had. Most seedsmen make them more or less a specialty; the plants I saw were from seeds supplied by Messrs. Sutton, and to them credit is due in distributing so excellent a strain.—W. S.

SCIENCE AND CATERPILLARS.

MY letter to the *Daily News*, which you honoured by a notice on page 443, has received severe comments from many scientific and agricultural quarters. The first find fault with my rudeness to Paris green, and my instinctive trust in natural compensations, the latter with my selfishness, because I was not sympathetic with the Apple growers of Herefordshire, and because I slyly hinted that my swarms of birds had something to do with my immunity from the plague. Science means exact knowledge, and when it suggests definite scientific courses should give all demonstrable results from their adoption. When science gives us, as in your last week's issue, beautifully executed portraits of the caterpillar pest in all its stages, with a valuable history of the whole course of its life, it is doing sound work, exact, scientific, and useful.

I attacked a crude and dangerous remedy because it came with authority from a scientific source, but was not scientific. Glance at it for a moment. The caterpillar lives in extremely small holes in

blossom buds, and to destroy it I am told to aim Paris green and rose water, or something of a liquid kind, at him and poison him. Now, effectively to shoot a little caterpillar on a big Apple tree with a squirt is beyond the sporting powers of the average Bœotian, while to saturate food-producing plants with such an indestructible poison as arsenic, spreading it wholesale over acres of grass and thousands of square feet of leaf, bark, and bud, looks bookworm like, but I humbly suggest is not scientific.

How much poison would the caterpillars get, and how much the fowls, sheep, pigs, and other Apple eaters? It may do for a Geranium—I beg its pardon, a Pelargonium—in a study, but in an ordinary orchard alive with stock many other things have to be considered.—JOHN HIGGINS, *Pylle, Somerset.*

You have put the fruit growing world under great obligation, both by the able article in this week's Journal and also by Mr. Smith's very clever drawings. No more can ever be done in that way. We shall, however, have to keep pegging away to expose the weak suggestions which theorists put their names under in print. Here we have almost ended a most severe fight, and have come out better than I expected. The season will be remembered as a sort of fête for insects. The little white fly which attacks Tomatoes is swarming on our evergreens. Caterpillars are riddling our forest trees. The Cider Apple trees are becoming quite devoid of leaves in many cases, but thanks to Paris green, my fruit field is green.—D. LEE CAMPBELL.

SPRING FLOWERS AT HOME AND ABROAD.

(Concluded from page 439.)

THE name of Messrs. Van Meerbeek & Co. is becoming every year more familiar to purchasers of bulbs in this country, and it will not be from want of enterprise if it fails to become synonymous with a large and high class trade. Very considerable progress has already been made, and there can be little doubt that there is a great future in store for the firm. Considering the length of time they have been in business the strides they have made are remarkable, and a striking proof of the advantages of advertising. Their farms are of very considerable extent. A large portion of the land lies on the line of railway from Rotterdam to Amsterdam, near the little town of Hillegom, and may be seen from the train. Their cultural methods are of the same high character as those of the other firms visited. Many acres are occupied, and other fields of maiden land are being brought into cultivation as rapidly as possible to meet the yearly increase of business. Messrs. Van Meerbeek and Co. are capitalists bearing a very high business character in their own neighbourhood, and the managing partner, a young man of great ability, is proceeding on lines that can hardly fail to be followed by successful results.

Apart from the open air bulbs, such as Hyacinths, Tulips and Crocuses, glass structures are being erected for other bulbous and tuberous rooted plants requiring indoor culture, such as Gloxinias, Begonias, Tydas and Gesneras, for all of which there is a considerable demand. The two former are raised from seed of prize strains in large quantities and the tubers sold. They are grown in low houses with roofs having a slope merely sufficient to throw off water, so that the boxes in which the seedlings are raised can be placed close to the glass without step stages, and the young plants are always sturdy instead of weakly and drawn. Some growers of bulbs for exhibition have similar houses, with a broad stage of uniform height, so that the plants are all on the same level close to the nearly flat roof.

Mr. J. H. Krelage is the *doyen* of the Dutch bulb growers. He is the head of the old firm of E. H. Krelage & Son, Kleinen Houtweg, Haarlem, an establishment of world-wide repute. He is the President of the Dutch Bulb-growers' Union, and a respected member of innumerable other societies, home and foreign. The establishment over which he presides differs somewhat from that of other wholesale bulb growers in that considerable attention is given to miscellaneous plants, hardy and indoor. Most of the dealers are absorbed in what may be termed the great money making bulbs—Hyacinths, Tulips, Crocuses, and Scillas. These they cultivate by the million, and as a rule they take but a languid interest, if any, in specialties, which they procure for their customers if ordered, but frequently do not grow. Apart from his large trade in these flowers Mr. Krelage has an extensive collection of choice kinds less widely cultivated, but more interesting to lovers of hardy flowers. He takes a deep interest in the late or florists' Tulips, and has lately introduced to the notice of florists what are known as the Darwin Tulips. These are a selection of choice breeders, and when rectified they will probably provide a number of excellent varieties. The evolutionary process which transforms the self breeders into the beautifully flamed or feathered rectified flower renders the title chosen for this strain an excellent and appropriate one, connecting the illustrious name of the great apostle of evolution with one of the most interesting examples of transformation in the whole gallery of Nature. These, however, are May flowers, and long before then there is something of interest to be found amongst the large and choice collection of Crocuses (species), Narcissi, Irises and Anemones, not to speak of miscellaneous bulbs. Later, Liliams, Ranunculus, Gladioli, Cyclamens, Hellebores and other important families contribute largely. The flower lover can rarely visit Mr. Krelage's establishment without finding much to interest him.

Indoor plants are also grown on a fairly large scale. For quarter-

specimen Azaleas and Imantophyllums there is a great demand to furnish windows in all the large Dutch towns, and Mr. Krelage does something to meet it at Haarlem. It is surprising to note on how much larger a scale plants are employed for room decoration there than in (supposed) flower-loving England. The interior of almost every window has its small densely flowered Azalea or Imantophyllum, with Lilies of the Valley and early Tulips to set off the larger specimens. This is a custom that does much to brighten and beautify the large towns and render them what they are, amongst the most pleasant and interesting in Europe.

Mr. C. G. Van Tubergen, jun., of Haarlem is another bulb grower who may be visited at what would prove an off time with the great majority, and there would be something to repay a call. He, too, deals largely in miscellaneous flowers, and in his collections at the Haarlem Show, including one of Irises, there was much to admire. Iris Bornmülleri, dwarf, bright yellow; Trillium sessile var. californicum, very large white flowers, 6 inches across when expanded; Lachenalia aurea, large rich yellow flowers; Erythronium grandiflorum var. Smithi, a pure white variety of the large Dog's Tooth Violet; and Teophylæa cyanoceros, a fine pan of rich gentian blue, were a few among many noteworthy plants he had there. His Irises are in themselves a source of unusual interest, and the collection is added to by every novelty that possesses merit or is likely to be sought after. Other farms out of the ordinary character that will repay for an inspection are those of Messrs. Roozen Bros., Overveen; Van Eeden & Co., Haarlem; G. C. Van Meeuwen, Haarlem; and De Graaff Bros., Leyden.

The wholesale establishments afford opportunities of becoming acquainted with the best varieties of the most popular bulbs. They are easily compared when each variety is grown by the thousand in large blocks, and many, unlike myself, prefer to linger over these than over different species of Crocuses and Irises in smaller numbers. Mr. Robert Sydenham, the Birmingham amateur, whom I met at Haarlem, has taught himself a great deal about bulbs by going over to Holland, getting up at six o'clock every morning, and spending the whole day amongst the beds. He is an enthusiastic lover of the flowers as well as a large dealer in them. Whether he allows himself time to eat or drink while amongst them is very doubtful. I have heard of his falling into a canal in his eagerness to get over the other side and inspect something good; and I am sure he would cheerfully endure more than this in order to find a good variety for his customers. The visitor to any of the farms may rely upon receiving every courtesy, hospitality, and attention. In leaving the subject my special acknowledgments are due to Mr. H. Van Waveren of Hillegom and his sons; to Mr. Ant. Roozen of Overveen; to Mr. G. J. Van Waveren, head of the firm of F. & H. Van Waveren; to Mr. Egbert Kersten of Haarlem, and to the managing partner of Messrs. Van Meerbeek & Co., all of whom were courteous and helpful in the highest possible degree.

A closing word as to spring flowers on this side of the water, with special reference to Tulips. These do not appear to have flowered so well as usual this year. My own collection of about thirty early Dutch varieties in pots yielded only a few flowers. In this case I should be prepared to modestly bow to the verdict of the distinguished critic who gives judicial opinions on my gardening operations when he is not feasting on Paris green and caterpillars, and admit some error of treatment, but for the fact that many experienced cultivators have had similar results. One large market grower estimates his loss from the imperfect flowering of Tulips this season at £300, a serious item if accurate, as all the remarks of market men are not. I observed, too, that in the public gardens there were ugly gaps in the Tulip beds in April and May. It is possible that the bulbs were not well matured, or else were prematurely ripened last year, and that more favourable results may accrue from the present season's crop. It would be very regrettable if the upward move in favour of these beautiful flowers were to receive a check from discouragement at their not blooming.

With these, as with bulbous flowers generally, there is room for extended cultural knowledge. The general principles governing their wants and weaknesses are known, but many important details have not been closely studied. Bulbs generally form so important a link in the floral chain that increasing attention may be claimed for them. They provide flowers from the earliest to the latest period of the year; they are beautiful in the greatest and most diversified degree; they are amenable to culture by the highest and lowest; and in one instance they present a phenomenon undiseverable in any other flowers. For all these reasons it is hoped that too much has not been said about them in the present series of papers for the patience of Journal readers, and that their brightening and refreshing influences may be extended from year to year.—W. P. WRIGHT.

CLEANING OUT PONDS.

A CORRESPONDENT, "A. MeK.," asks how to clear ponds of green slime. I will gladly give my experience. In the first place I get on good terms with the poultry woman. Then I ask for a few ducks to put on the ponds, and the green slime soon disappears. This is a very simple remedy, and if "A. MeK." tries the plan he will soon get clear of the slime.—H. E. K.

IN answer to "A. MeK.," on page 465, I may say we have several ponds here, two of which were cleaned out last winter. The principal pond, which is rather over an acre in extent, and about 12 feet deep in

the deepest part, is the lowest one, and is fed from the other ponds by streams. Last year a large quantity of moss collected and grew in the ponds. I do not think it was detrimental to the fish, but it was unsightly, and it was determined to have the ponds cleaned. The bottom sluice or outlet opens into a channel about 3 feet wide. We fastened across this channel a strong piece of fine wire netting. The sluice was opened for a few minutes, then closed. The fish could not get past the wire, so were caught in pails, put into watercarts, and taken to the upper ponds. This continued until all the water was out and the fish caught, only half a day's work altogether. The pond ought to remain empty for a few weeks to allow the mud to stiffen, then it can be easily wheeled out on planks supported on strong boxes or blocks. The stuff that comes out of the ponds is excellent for top-dressing shrubberies or making new ones. We have made three large borders this winter with the emptyings from one pond. When this pond was completed the water was let off from the upper pond, and the fish allowed to go with the stream into the large pond. Such dirty work should be done in the winter, and not when the grounds should be in their best condition to receive garden parties, &c. In carting fish from one pond to another too many should not be put into one cart, and the water should be fresh every time. We have seen them die through being too crowded and too long in the small body of water which a watercart holds. The other ponds will be emptied in the same manner next winter.—A. B. D.



TEA ROSES OUT OF DOORS.

FOR the last month we have been enabled to cut these Roses freely from plants growing at the base of a low wall having a southern aspect. The wall is really the front part of a range of houses consisting of a plant stove, Peach house, and a greenhouse. Two years since the border in front of the wall was banked up, the latter some distance, and was useful for the growth of early vegetables, such as Potatoes and dwarf Peas. The idea struck me that by lowering the border 18 inches at the back and half as much at the front the wall might be better utilised for growing early Roses, and, except the loss of a narrow space close to the wall, the border for vegetable growing would be but little worse. Consequently, the subsoil was removed the depth named, retaining the surface heavy soil. The bottom of the trench was well broken up, and a good layer of decayed vegetable refuse laid in. Owing to a crop that could not be removed at the time—October—we were enabled only to operate on a part of the border until the following spring; but for a year there was a marked difference in the progress of growth of the Roses of those planted at the two seasons, which proved to me, were it necessary, that early autumn planting of Roses has much to recommend itself over spring planting, and it sounds like common sense that those planted out in the autumn have a much better opportunity to succeed than those planted five months later.

Beyond a thick mulching of the surface soil with manure partly decayed I do not find it is necessary to cover the Roses, although we had 18° frost on the 4th of March. The Rose trees in question did not suffer, they by that time were started into growth. Where early outdoor Roses are valued, and I do not know where they are not, any space with a similar aspect should be planted with Tea varieties. The blooms succeed those grown inside the greenhouse so well, maintaining an unbroken supply of choice blooms up to the time when they can be had in numbers from the open quarters. This place being of a high altitude and exposed to easterly winds, which are prevalent in the spring months, the foliage has suffered somewhat from mildew attacks, which rather deteriorates from the appearance of the plants when in bloom, although it is not very often that early flowering outdoor Roses are well provided with good foliage. We have treated our plants the last month to a couple of soakings of tepid liquid manure, which has had the effect of improving the quality of the flowers, the border not being in a position to obtain much moisture from rains of late.

The earliest variety to open its blooms was Safrano, and certainly this is one of the most useful Roses we have, especially where button-hole bouquets are in demand, buds of this sort are capital for this purpose. Even when this Rose is fully blown there is something especially taking about the manner in which the petals unfold; in this way also Safrano is much appreciated. Our plants of this variety are all from cuttings, and right well do they grow and blossom. The next to open its flowers is Reine Marie Henriette, sometimes called a red Gloire de Dijon; why, I fail to see, as there is but little, if anything, in common between the two. This variety flowers with great freedom. The colour is not nearly so deep as in the blooms growing in a cool house. In spite of this defect it is a first-rate sort for producing early flowers. The growth is not nearly so rampant out of doors either, a point in its favour where space is limited. From cuttings also will this Rose succeed freely. Princess of Wales is much admired for its perfect form and pleasing colour. The petals are broad and waxy in

appearance. Madame de Watteville is much esteemed for its remarkable colour, white tinted with salmon, full flower of good form. Niphotos is too well known to need description here; as an early flowering Rose it is good. Perle des Jardins, soft yellow or canary colour, full, and well formed flowers freely produced. Souvenir d'Elise, white with a blush centre is a beautiful Rose.

Lady Mary Fitzwilliam produces finely formed flowers on dwarf plants of exquisite shape, delicate flesh colour. W. A. Richardson is capital for a dwarf wall, the growth being branching; it also flowers early, and by planting others in different aspects a succession of flowers might be ensured in this way for some time. Those on a western wall are the richest in colour; when in the full glare of the sun on a south wall the colour is apt to be pale, the outer leaves are quite white, and the centre of the flower loses some of the rich orange so attractive to this charming Rose. Caroline Kuster, bright lemon yellow, perfect shape. The above are some of the varieties we have been enabled to cut useful blooms at a time when they were much appreciated.—E. MOLYNEUX.

NOTES ON ROSES.

[A paper read on May 14th, 1890, at the Monthly Meeting of the Cambridge Horticultural and Florists' Society, by Mr. Alfred Chater.]

(Concluded from page 470.)

I WILL now run through the next ten years, 1871 to 1880. We received a great many seedlings, but only about twenty up to the mark. We are getting more particular. Etienne Levet, François Michelin, Captain Christy, E. Y. Teas, Duchesse de Vallombrosa, Jean Liabaud, Star of Waltham, Magna Charta, Sultan of Zanzibar, A. K. Williams, Mad. Gabriel Luizet, Marie Verdier, Mrs. Laxton, and Duke of Teck. During the same time, nine extra good Teas were added, a greater advance than in the Perpetuals. First of all stands Marie Van Houtte, followed by Comtesse de Nadaillac, Anna Ollivier, Jean Ducher, Perle des Jardins, Mad. Lambard, Innocente Pirola, and Mad. Welch, with Caroline Kuster, a most beautiful Noisette. It is unnecessary for me to go through the last ten years, from 1881 to 1890, as the flowers are well known.

I now ask the question, How do we stand at the present time compared with fifty years ago? Then we had Du Bourg, a lovely pale blush, now we have in its place La France; then there was that dazzling rich scarlet crimson Gloire de Rosomanes, now we have A. K. Williams, Charles Lefebvre, Marie Baumann, Alfred Colomb, E. Y. Teas, Louis Van Houtte, and many others. Then we had Madame Desprez; compare it with Etienne Levet, François Michelin, and others, and what a change we find! In Noisettes, Jaune Desprez, Lamarque, and La Biche were our best. Grand Roses we thought them then, but now the beautiful Maréchal Niel has quite eclipsed them all. Teas.—We had Devoniensis in 1840, fifty years ago, and we have it now, and is equal to any of the new ones. Yet we have added many to the family. There is Souvenir d'Elise, the best of all, Souvenir d'un Ami, Niphotos, Catherine Mermet, and many others.

I ask, Has the Rose been brought to as great perfection as many other flowers have been during the last fifty years? I say, No; it has not. There was a much larger field to work upon, a greater number in the family, and we ought to have had greater results. "Why is it?" I take it that it is not so much of a real florists' flower; it is more of a nurseryman's plant, and grown for profit. It sells well, being a general favourite and grown by everyone. It has not been grown as a hobby the same as the Auricula, Carnation, Tulip, and many other florists' flowers. Why, if we had had an Auricula Robert Headly, G. Lightbody, or James Douglas, a Tulip Horner or Barlow, a Carnation Dodwell, a Picotee Fellowes, a Dahlia Widnall, a fancy Zonal Grieve, a Pelargonium Beck, a Clematis Jackman, a Pansy Hooper, or may I say a Hollyhock Chater, and many others equally competent to take up the Rose, by this time, we should have a "yellow Hybrid Perpetual," the colour of the new Persian Yellow, and in form like Alfred Colomb; a striped Charles Lefebvre, a perfect Picotee-edged La France or Baronne de Rothschild.

How many Roses of the present day are the work of the florist? Very few. Certainly John Hopper was a decided cross. I know there are plenty of raisers, but they take the seed indiscriminately, and trust to providence for a slice of luck. Although we have hundreds who grow their thousands of Rose plants, how many attempt to hybridise them? If you want to improve the Rose it does not require many plants. A dozen or two are quite sufficient, and the true florist finds greater pleasure and enjoyment from his seed bed, where he has sown the seed from a few heps of his own careful crossing. He watches each plant as it comes up peeping out through the fine soil, and takes particular notice to see if there is any variation in the foliage from the same pod of seed. Then as they grow he finds some with more thorns than others; he knows their parents and notes which they take after. They grow on, then the buds begin to show. Oh! anxious time. Some with large, round, plump buds. He feels a thrill of pleasure, the colour is showing through the calyx. Every day he looks and caresses them until they fully expand. He may be disappointed, but the chances are ten to one he will be rewarded with several new and distinct flowers. Is it so with the ordinary raiser? No, he gathers the ordinary seed from his beds of Roses (he may keep the sorts separate), it is sown in large beds, and perhaps here and there he may get a good flower, the chances are

ninety-nine out of the hundred will come single or semi-double, only fit for stocks to bud upon. I am afraid I have taken too much of your time, but as I said I would give a few hints how to grow Roses I will begin with

SITUATION AND SOIL.

They like an open place; it must be sheltered from the north-east wind, as they require plenty of air, but not exposed to draughts. As to soil, they will grow in any kind. They prefer a deep rich loam. If the soil is very light with gravel underneath, you must add some good turfy loam from an old pasture with plenty of good well-decayed farmyard manure—cowdung if can be had—and mulch round the plants in spring and autumn. If heavy soil with a clay bottom it will require draining and then well trenched two spits deep, adding plenty of manure. Pig dung is best for heavy soil, and mulch in spring and autumn. It matters not what sort of soil you have, it only requires a little judgment, using burnt earth on heavy soils, soot on medium, and broken bones and charcoal on all soils. The earth round the plant requires to be forked up at different times, being careful not to disturb the roots.

FEEDING.

Roses like plenty of feeding and good liquid manure. The best time to apply it is when they are showing the flower buds. If there is a chance of a good shower give them a strong dose, and then the rain will wash it in. On cold soils guano is a capital dressing, but I prefer Rivers' mixture if you have a place to prepare it—maltchiks and horse droppings, with urine poured on, lay it in a heap, and turn it over a few times before using. It is rather a high flavoured compound. It makes a capital dressing for pot Roses.

PLANTING.

If you are not going to make a Rose bed, but only plant a few about the garden, then it is best to dig a hole two or three spits deep, 3 feet across, and put in a barrowful of decayed manure. Well mix it with the earth, and when you plant be careful to spread out the roots, mixing the earth and shaking it between them, and then press it firmly with your foot. If standards, drive a stake in and tie the Rose to it.

INCREASING.

If you would like to increase your stock, you may do so by budding or cuttings. On light soils the Manetti stock is preferable. It is best for all soils. You must bud close down to the soil, under if possible, and then when you remove your budded stock plant it below the bud, and it will soon get on to its own roots. For Teas the old Dog Rose is best. Plant some stocks in a warm corner where it is sheltered from the cold winds. In choosing stocks get good healthy ones from 3 to 4 feet high, and when they shoot cut off all suckers and shoots that are not required, so that you may get all the strength possible in the one you intend budding on, and be particular to have strong buds of the sorts you require.

PRUNING.

This requires judgment. No hard and fast line can be drawn. If you want good flowers you must not be afraid of the knife. H.P.'s will stand plenty of cutting. Teas are all the better for pruning sharp, some sorts more than others. Noisettes require cutting after blooming, and leaving the strong growths for flowering the next season. For varieties get any descriptive list to choose from, or leave it to the nurseryman to send you the best, and you will be sure to get a better lot than if you choose them yourselves.

THE EDIBLE STACHYS.

"D., Deal," is at a loss to understand why I have "nursed up my wrath so long," then poured it out on him on account of the short note which he says he gave on this vegetable "some time ago." And well he may be, because in the first place I was innocent of "wrath" in my rejoinder to him as the assailant. It was my gossipy article (not his) that appeared "some time ago," or, to be precise, on January 30th. "D., Deal," can be jocular when it suits him, also it seems serious and severe. If there was any "nursing," I will not say of wrath, surely he was the "nurse," for his curious critique did not appear till my article, which contained absolutely no allusion to him, had been published more than three months, while my rejoinder to his reference (May 22nd) appeared on May 29th—one week. After an examination of those dates I think I may, without being considered very childish, be excused by failing to understand the meaning of the opening sentence of your correspondent on page 470 last week.

"D., Deal," may be fully assured that I have no disposition to defend the name I did not give, but quoted correctly, though he has adduced plenty of precedents for incongruous names, and one person has as much right to indulge in a harmless fancy as another. I have heard the name "Stachys" scoffed at, but did not feel called on to pronounce the remark of any person "very ridiculous;" and I fail to see that the use of that mature epithet was essential to the denunciation of the plant itself, or "to warn people against being led away by the love of novelty to grow a thing which is not only absolutely useless as a vegetable, but a horrible weed."

"D., Deal," has felt it right to issue strong warnings before, and repeatedly, but the condemned articles have survived. Possibly the Stachys may survive also, at least for a few years longer. It certainly has some friends who are not quite children in the horticultural world,

and their estimate is somewhat different from that given on pages 424 and 470. On the former page they are stated to have "no flavour, and you could only taste the fat in which they were cooked."

Now let us see what has been said in favour of the "spirals." Mr. H. J. Veitch, in his excellent paper on the "Progress of Vegetables," read at the Chiswick Conference, and republished in the *Journal of Horticulture*, page 405, says the tubers of the *Stachys* "have an agreeable flavour peculiar to themselves." Mr. H. Norman, gardener to the Marquis of Salisbury, Hatfield, says he believes "they will be useful for salads." Mr. J. Smith, gardener to Lord Rosebery at Mentmore, describes the *Stachys* as a "new and excellent vegetable where flavour is required." Mr. M. Dunn, gardener to the Duke of Buccleuch, Dalkeith, says, "the tubers make a nice dish for table." Then we have the official Report of the Royal Horticultural Society, adopted by the Council as the verdict of the Judges who were appointed to examine the new vegetables at Chiswick. This is their verdict:—"This new vegetable seems to be meeting with increased approval, both for cooking purposes, also for use in winter as salads." The Judges were Messrs. Benary, Erfurt; Hill, Tring Park; Moss (Wrench & Sons), Ross, Welford Park; and Silverlock, Strand.*

Tastes vary unquestionably, so do soils, and their influence on vegetables. I do not see, therefore, what other conclusion can be arrived at than that either "D., Deal's," taste must be unusually acute, or the soil of his garden unsuitable for the production of the vegetable which the gentlemen named approve, but he so strongly condemns. I have not written a line with the intention of causing "D., Deal," any discomposure, and I hope he can say the same about his references to myself. —A CITY MAN.

THE ROYAL HORTICULTURAL SOCIETY.

JUNE 10TH.

PEONIES were announced as the special attraction of this meeting, and the offer of a silver challenge cup to amateurs ought to have been sufficient to induce a spirited competition. Certainly there was no lack of Pæonies, they were in fact grandly and extensively shown by the leading firms that include these plants in their collections. Amateurs, however, were not well represented, and the Rev. W. Wilks was the only exhibitor. The prize was accordingly awarded to him, but so fine were his flowers, so well selected the varieties, and so effectively were they staged, that he would have probably gained the honour in a strong competition. Irises and Pyrethrums were shown in large numbers. There were some particularly fresh and substantial Tea Roses from the Oxford district, and numbers of other special exhibits. Orchids were well shown, and included several remarkable novelties, the most noteworthy being *Cypripedium Aylingi*, referred to at length in another page. Cattleyas were bright, especially three of the choicest from the fine collection at The Grange. Altogether there was plenty to please and interest such visitors who, undeterred by the wet afternoon, found their way into dismal James Street and the Drill Hall.

FRUIT COMMITTEE.—Present: Sir C. W. Strickland, Bart., in the chair, and Messrs. J. Lee, T. Francis Rivers, Philip Crowley, R. D. Blackmore, G. W. Cummins, G. Bunyard, A. H. Pearson, J. Hudson, H. Balderson, F. Q. Lane, and J. Cheal.

Five varieties of Tasmanian Apples were submitted to the Committee for consideration and names. After a careful examination the following resolution was adopted:—"In the opinion of the Committee the climates differ so greatly that it is impossible to identify any of the fruit sent with recognised English varieties, and that the Committee desire to express an opinion that none of the fruits equal the best English varieties in quality." Messrs. Rivers & Son, Sawbridgeworth, sent two varieties of early Cherries—viz., Belle d'Orleans, red, and Early Rivers, black, fine fruits of both being shown, and a cultural commendation was awarded. Mr. J. Smith, Mentmore Gardens, exhibited large fruits of Strawberry A. F. Barron (vote of thanks); Messrs. J. Veitch & Sons, Chelsea, sent fruits of Apple North End Pippin (passed) and Pingo de Mel Figs (vote of thanks). From the R.H.S. Garden at Chiswick came fruits of Crescent Strawberry with several ripe fruits, and evidently much earlier than Noble, which was also shown for comparison. Two new seedling Melons were sent by different exhibitors, one of the fruits being over-ripe, and was therefore passed; the other was of extremely bad flavour.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. H. Herbst, T. Baines, R. Dean, J. Walker, T. W. Girdlestone, H. B. May, H. Cannell, B. Wynne, H. Turner, C. Noble, J. Fraser, G. Paul, W. Holmes, G. Nicholson, F. Ross, and the Rev. H. H. Dombrain.

Messrs. B. S. Williams & Son, Upper Holloway, contributed a group of well grown Sarracenias, and some of those neglected beautiful foliage Melastomaceous plants, the Bertolonias (bronze medal). Mr. G. Prince, Oxford, had three boxes of charming Tea Roses, Catherine Mermet and Prince of Wales being conspicuous amongst many other beauties (bronze medal).

Hydrangeas formed an uncommon and most attractive group from Messrs. J. Veitch & Sons, Chelsea. The varieties were H. rosea, with large deep rose flowers; H. Otaksa, pale pink and white; H. mandshurica, rose tinged and tipped; and Thomas Hogg, white. *Primula sikkimensis*,

with tall scapes of yellow flowers; and the stately *Rodgersia podophylla* (certificated) were also notable in the group. A white flowered variety of *Ionopsidium acaule* named album from C. T. Hodges, Esq., Lachine, Chislehurst, secured the exhibitor a vote of thanks. Ivies were admirably represented from Messrs. Wm. Cutbush & Sons, Highgate; and in the six boxes staged it is probable that nearly 100 varieties were included, showing most varied foliage and colour (bronze medal).

The handsome Pæonies, the graceful Shirley Poppies, and interesting hardy plants from Messrs. Paul & Son, Cheshunt, deservedly secured the award of a silver medal. Charming Aquilegias in numberless shades of colour constituted an interesting exhibit from Miss Harris, Lamberhurst (vote of thanks). The large curiously veined and strangely foetid flowers of *Aristolochia ornithocephala* from Messrs. Cannell & Son attracted some attention. Mr. F. Reeves, Acton, sent some deep red Carnations of the Clove type. A group of Irises, Aquilegias, Pyrethrums, and the old garden favourite, *Hemerocallis flava*, came from Messrs. Veitch & Sons. Messrs. J. Laing & Son, Forest Hill, had several choice new tuberous Begonias. Gloxinias, Pelargoniums and tuberous Begonias in many fine varieties were shown by Messrs. Cannell & Sons (bronze medal). Tulip flowers from S. Barlow, Esq., Manchester, received a bronze medal. Mr. R. Dean exhibited a collection of fine white Violets. A rich series of Irises shown by Messrs. Barr & Son, and an extensive bank of Pæonies, Irises, Pyrethrums, Delphiniums and Amaryllises secured Messrs. Kelway & Son a silver-gilt medal.

Lord Penzance, Godalming (gardener Mr. Baskett), had a most interesting collection of single Roses and Sweetbriars, together with several crosses of a very distinct character, one of which was certificated. Several exhibits from the Royal Gardens, Kew, excited much interest, notably *Dendrobium lineare*, a species from New Guinea, with small white flowers and purple lip in long racemes; *Solanum Wendlandi*, a trailing plant with large bluish Convolvulus-like flowers; *Pachira insignis*, with large yellowish flowers, and a great bunch of reddish stamens in each; also the rich blue *Nymphaea zanzibarensis*. Mrs. Robb, 46, Rutland Gate, showed several Ferns and flower stems of the common Broom.

ORCHID COMMITTEE.—Present: Sir Trevor Lawrence, Bart., M.P., in the chair, and Messrs. De B. Crawshay, H. Ballantine, J. Dominy, C. Pilcher, E. Hill, F. Sander, Lewis Castle, A. H. Smee, H. J. Veitch, and James O'Brien.

Orchids were shown in good numbers, and besides those for certificates or awards of merit were granted, the following were specially worthy of note. A vigorous plant of *Phalaenopsis grandiflora* with large flowers, from F. Wigan, Esq., Clare Lawn, East Sheen (gardener, Mr. W. H. Young), for which a cultural commendation was awarded. A small group of Orchids was shown by the President. The peculiarly spotted Cattleya *intricata* variety *maculata* came with other Cattleyas from M. C. Cooke, Esq., Kingston Hill (gardener, Mr. D. Cullimore). Fine panicles of the useful *Oncidium sphacelatum* were shown by Mr. G. Wythes, Syon House. Handsome varieties of Cattleya *Mendeli* and *C. Mossiae*, with *Phalaenopsis speciosa maculata*, were shown by A. H. Smee, Esq., The Grange, Hackbridge (gardener, Mr. Cummins). *Odontoglossum cristatellum* came from J. Larkin, Esq., 142, Highbury New Road, and a cultural commendation was awarded.

Sir W. H. S. Marriott, Down House, Blandford, sent a plant of a hybrid Orchid, named *Lælio-Cattleya Marriotti*, from a cross between *C. Mossiae* and *Lælia purpurata*. C. L. N. Ingram, Esq., Elstead House, Godalming, also sent a Cattleya from the same parentage, which the Committee desired to see again. They were both, however, considered to be forms of *C. Canhami*, a similar cross previously obtained by Messrs. Veitch & Sons.

CERTIFICATED PLANTS.

Cypripedium Aylingi (A. J. Hollington, Esq.).—A fine hybrid, described in our Orchid column.

Phaius Humbloti alba (Baron Schröder).—A beautiful variety, with pure white broad rounded sepals and petals.

Cattleya intermedia Parthenia (Sir Trevor Lawrence, Bart., M.P.).—A variety with pure white flowers.

Batemannia Wallisi (F. Sander & Co.).—A strong plant with one large flower, the sepals and petals broad and fleshy, the apical half of a rich glossy brown, the centre white with two dark spots, one on each side of the column; the lip is also edged with brown.

Crinum brachynema (J. Smith, Mentmore).—The plant of strong but dwarf growth, the flowers pure white and of good shape.

Rose Sweetbriar × *Harrisoni* (Lord Penzance).—A hybrid from the parents named, with single flowers of a delicate salmon hue tinged with bronze and pale yellow in the centre.

Rodgersia podophylla (J. Veitch & Sons).—A bold plant with deeply divided irregularly cut leaves and panicles of white flowers, suggestive both in appearance and fragrance of the common Meadow-Sweet.

Bertolonia Souvenir de Gand (B. S. Williams & Son).—A distinct variety with deep green leaves, clearly veined with rich rosy crimson.

Cattleya Mendeli Alfred Smee (A. H. Smee, Esq.).—Described in the Orchid column (award of merit.)

Odontoglossum Galeottianum (Thomas Statter, Esq., Stand Hall, Manchester).—A dwarf species with small pseudo-bulbs and white flowers, having a prominent yellow crest at the base of the lip.

* *Journal of the Royal Horticultural Society.*

Odontoglossum Pescatorei Tilgate Variety (Mr. R. Young, Crawley).—An exceedingly well grown plant, with strong pseudo-bulbs and two large panicles of small flowers, white, the sepals heavily spotted near the margin with purple, the petals and lip having fewer spots. An award of merit and a cultural commendation were adjudged for this plant.

Achillea (Ptarmica) mongolica (Paul & Son).—Flowers about an inch in diameter, and pure white.

Xerophyllum asphodelioides (Paul & Son).—Flowers small, creamy white, in long dense racemes. A tuberous plant with grass-like leaves; native of North America.

Lobelia Reine Blanche (Mr. J. Witney, Turvey, Bedford).—A pure white, compact growing, free variety (award of merit).

Gloxinia Agnes Cook (H. Cannell & Sons).—A beautiful variety, the flowers of excellent shape, densely dotted with a purple on a white ground (award of merit).

Begonia Golden Queen (H. Cannell & Sons).—A double variety, the flowers very large and deep yellow (award of merit).

Begonia Madame Pfitzer (J. Laing & Sons).—A handsome double yellow variety, the flowers of great size and excellent shape, the habit compact.

Paeonies (Kelway & Son).—*Stanley*, single dark red; *Princess Mary*, double creamy white, very large flower; *Duchess of Teck*, double, bluish pink and white, flowers of great size (awards of merit).

READING HORTICULTURAL SOCIETY.

JUNE 4TH.

IN showery weather this Society commenced its thirty-seventh season by an extensive display of early summer products tastefully arranged on the terraced slopes within the massive high flint walls known as the Abbey Ruins, once a rich and splendid monastery. The ruins are situated close to the centre of the town, and are connected with the Forbury Gardens, which are kept in fine order by Mr. G. Phippen, at the cost of the corporation. The summer bedding being completed the executive were hoping for a large company to inspect the gardens and the Show; but alas! persistent rain till near the hour of closing kept the limited attendance under the shelter of the canvas.

A liberal schedule of prizes had been provided, and generally the classes were well filled, great interest being concentrated in the section devoted to Orchids, which were presented in fine condition. For three Mr. Cypher, Cheltenham, led with good examples of *Cypripedium barbatum*, forty flowers; *Cymbidium Lowianum*, eight spikes furnished with nearly twenty flowers; and *Cattleya Mendeli*, eight prime blossoms. W. J. Palmer, Esq., second, with a noble example of *Oncidium sphacelatum*, eight spikes, twenty-five flowers each; *Cypripedium barbatum*, twenty flowers; and *Dendrobium thyrsoiflorum*, fifteen racemes; the third prize falling to J. Marriott, Esq., Coventry, who had *Dendrobium suavisimum*, ten racemes; *Lælia purpurata*, nine flowers; and *Cypripedium barbatum*, twenty-five slippers; an extra prize being awarded to Mrs. Owen Knox, Caversham, for choice bits of *Dendrobium Falconeri*, *D. Dearei*, and *Cypripedium ciliolare*. For one specimen H. J. Simonds, Esq., took the premier honours with a splendid example of *Vanda teres*, 120 flowers. Mrs. Knox was second with a large plant of *Sobralia macrantha*, twelve blooms of intense colour; the third prize being taken by a choice example of *Cattleya Mendeli*, staged by J. Marriott, Esq.

Stove and greenhouse plants comprised a wide range of varieties, J. Marriott, Esq., leading in the class for nine in flower, securing the first prize for fresh well-flowered specimens, including *Cattleya gigas*, eight grand flowers; *Anthurium Schertzerianum*, *Dipladenia regina*, *Dracophyllum gracile*, *Azalea Model*, *Ixora Fraseri*, *Clerodendron Balfourianum*, *Erica affinis*, and *E. ventricosa minor*; Mr. Cypher filling the second position with *Lælia purpurata*, *Anthurium Schertzerianum* Wardi, *Hedera tulipifera*, *H. fuchsoides*, *Erica tricolor* Wilsoni, *E. ventricosa hirsuta alba*, *Azalea François Dubois*, *Apelexis macrantha rosea*, and *A. spectabilis* (the last two did not expand their flowers owing to the low temperature). Mr. James, Norwood, was third. For one specimen the first and second prizes went to immense convex bushes of *Clerodendron Balfourianum*, W. J. Palmer being first, and H. J. Simonds second. Mr. Mould, Pewsey, third, with a large example of *Erica Aristella*, he being the only competitor in the class for six, his best pair being *Statice profusa* and *Erica ventricosa magnifica*.

Heaths were excellent, though few. Mr. Mann occupied the post of honour with bright looking plants of *Erica Cavendishiana*, *E. Shannoni glabra*, *E. Fairreana*, *E. ventricosa rosea*, and *E. depressa multiflora*. Mr. Cypher was second; his selection embraced *Cavendishiana*, *Lindleyana*, *effusa*, *tricolor* Wilsoni, *ventricosa rosea*, and *v. grandiflora*.

Pelargoniums as a whole scarcely reached the standard of a Reading Show, the premier four of W. Palmer, Esq., being grand for size of blooms, although small plants; but the best group were nine from Mrs. Fanning, Whitechurch, whose varieties were *Norma*, *Duchess of Edinburgh*, *Spotted Gem*, *Alice*, *Lilacea*, *Mrs. Lewis Lloyd*, *Empress*, *Lady Isabel*, and *Triomphe de St. Mande*.

Azaleas were somewhat uneven in size, the premier four being disqualified as wanting distinctness, the leading prize eventually going to Mr. T. Lockie, Windsor, for neat pyramids of *Model*, *Duchesse Adelaide*

de Nassau, and *La Superbe*; a second prize being conceded to G. W. Palmer, Esq., for nine varieties.

Foliaged plants were fairly good. J. Marriott, Esq., was first for large examples of *Dasylyrion acrotrichum*, *Cycas revoluta*, *Kentia australis*, *Thrinax elegans*, and *Croton Disraeli*. Mr. James second with similar families; his group included a fine *Theophrastis imperialis*; G. W. Palmer, Esq., filling third place.

Ferns and Lycopods formed a refreshing feature in contrast to the blaze of colour produced by *Gloxinias* and *Calceolarias*. For six Lycopods, G. W. Palmer took the palm with perfect convex and pyramidal pans of *Selaginellas Braunni*, *apoda*, *denticulata*, *caesia*, *Kraussiana aurea* and *variegata*. Lord Saye and Sele was second. A large collection of Ferns and Mosses was staged by G. W. Palmer, Esq., who secured a premier; W. J. Palmer, Esq., being to the front with four Ferns, including *Gymnogramma Martensi*, *Davallia Mooreana*, *Adiantum farleyense*, and *Microlepia hirta cristata*. A. Palmer, Esq., second, with *Davallia Mooreana*, *Lomaria gibba*, *Leucostegia immersa*, and *Todea superba*.

Roses were staged in plenty, the plants manifesting an unequal development of bloom. There were nice examples of *La France*, Mdlle. Thérèse Levet, Oxonian, *Comtesse de Serenye*, &c., W. J. Palmer, Esq., and Mr. Mould sharing the awards for six, the prizes for four specimens being divided between Mr. Lockie and Mr. G. W. Palmer.

Rhododendrons made a fine display, the exhibitors being the Messrs. Lee, Reading, the senior staging about three hundred trusses of cut flowers, while the junior took the award for thirty plants.

Messrs. Suttons' special prizes for Tuberous *Begonias*, *Gloxinias*, and *Calceolarias*, value £30, may be said to have very largely contributed to the chief features of the Show, the competition keen, the plants dwarf and grandly flowered. For *Begonias* Mr. Lockie was first, Mr. C. Hammersley second, Mr. W. J. Palmer third. For *Gloxinias*, first, Mr. W. J. Palmer; second, Mr. B. Simonds; third, Mr. M. Lonergan; fourth, Mrs. H. La Malet. *Calceolarias*, first, Mr. G. W. Palmer; second, Mr. Lockie; third, Mr. W. J. Palmer; and fourth, Mr. J. O. Taylor.

Groups arranged on 12 by 10 feet were very tastily disposed, being enriched with Orchids and neat specimens of decorative varieties generally, W. J. Palmer and J. O. Taylor, Esq., taking the prizes; while on 10 by 5 feet space, Messrs. W. Palmer and J. W. Hounslow produced the most effective groupings.

Cut flowers included a table 40 feet long, on which were displayed a large number of epergnes in pairs and triplets all dressed with wild flowers and grasses, demonstrating that hedgerow, field, and roadside furnish subjects which, properly utilised, prove as effective as the more costly greenhouse productions. The Reading ladies well sustained their noted skill on the occasion, the choicest arrangements being those of Miss L. Phillips, Miss L. Cole, and Miss Creed.

Roses largely composed of Tea-scented varieties; the boxes in competition contained many full-sized blossoms, the first prize for twelve falling to J. Hargreaves, Esq., Maiden Erleigh, for *Grace Darling*, W. A. Richardson, Reine Marie Henriette (very fine), *Maréchal Niel*, *Jean Pernet*, *Jean Ducher*, *Rubens*, *Catherine Mermet*, *Gloire de Dijon*, and *Avocat Duvier*; no name being attached to the second-prize collection, but very choice were *Merveille de Lyon*, *Marquise de Castellane*, *Marie Baumann*, *Gloire de Dijon*, *François Michelin*, *Abel Grand*, *Ulrich Brunner*, and *Magna Charta*; equal thirds going to E. D. Lee, Esq., Aylesbury, for prime blooms of *Adam* (grand), *C. Mermet*, *Madame Lambard*, *Maréchal Niel* (the largest development in the competition), and *Souvenir d'un Ami*; and C. Hammersley, Esq., who had a good *Maréchal Niel*, *Catherine Mermet*, *Cheshunt Hybrid*, and *Devoniensis*.

There were a few good fancy Pansies, but the florists' types were small. Cuttings of twelve varieties of stove and greenhouse flowers were very choice, J. Marriott, Esq., taking the card; while for hardy subjects Mrs. H. La Malet was deservedly placed first.

Fruit was a good average for an early June Show. For white Grapes the cards went to J. Hargreaves, Esq., for *Foster's Seedling*, and C. D. Crews, Esq., for *Buckland Sweetwater*, the *Black Hamburg* prizes being taken by Mrs. Fanning and J. Hargreaves, Esq. E. D. Lee, Esq., staged the best dish of Peaches (*Alexandria*), and Mrs. Fanning *Elruge Nectarines*, and A. Waterhouse, Esq., *Yattendon*, the only dish of Figs (*Brown Turkey*). Melons were in plenty, but smallish fruits, the card being placed on *Blenheim Orange*. Strawberries were extra fine. The premier dish (*James Veitch*) came from C. Hammersley, Esq.; W. Palmer, Esq., second with *Sir Joseph Paxton*; a very creditable lot of Noble coming from *Malshanger Park*.

Vegetables included several choice collections, although the prizes were insignificant as compared with the quantity of varieties staged, Mr. Lockie taking the premier award, his arrangement including fifteen kinds; C. Hammersley, Esq., second; and W. Wilder, Esq., third. For the Society's prize, and also for Carter's special class for Cucumbers, Mr. Lockie secured both with *Carter's Model* in keen competition. For Potatoes (round and kidney) Mrs. Fanning first in both classes with *Goldfinder* and *Suttons' Seedling*; *Suttons' Ashleaf* and *Early Border* taking the second cards. The remaining classes were for *Asparagus* and *Cauliflowers*.

Miscellaneous Contributions.—In this section may be mentioned a collection of decorative plants, bouquets, wreaths, crosses, floral baskets, &c., from Mr. G. Phippen, whose contribution received a "three guinea" honorarium; from Mr. C. Fidler two dozen seedling Cucumbers (a solid useful variety) and a number of *Winter Green Cos* Lettuce, large and very solid; from *The Vineries*, *Wokingham*, a collection of *Melons*

(forty)—six Golden Perfection, weight 27 lbs.; six Conqueror, 41 lbs.; one Gem, 7½ lbs.; three each of Scarlet Invincible and Hero of Lockinge, 9 lbs. each trio.

ROYAL BOTANIC SOCIETY.

JUNE 11TH.

THE second summer Show of the year by the above Society was held in the Regent's Park Botanic Gardens yesterday (Wednesday), the character of the display being similar to previous years, perhaps a little wanting in colour. The weather was very changeable with frequent heavy showers.

PLANTS.

A good bank of Orchids was provided, the chief attraction being the dozen specimens for which Mr. Whellans, gardener to the Duke of Marlborough, Blenheim Palace, secured the premier honours, and an extra award of a silver-gilt medal. These comprised *Epidendrum prismatocarpum*, with about thirty spikes; *Dendrobium Dearei*, loaded with flowers; *Cypripedium caudatum*, with over forty flowers; and large masses of *Cypripedium barbatum*, *Cattleyas Warneri*, *Mendeli*, *Sanderiana* and *Mossiae*, and *Anguloa Clowesi*, with *Epidendrum vitellinum*. The second prize was taken by H. Little, Esq., Baronshalt, Twickenham (gardener, Mr. Howard), for a tasteful group arranged with Ferns. Mr. J. Douglas, Great Gearies Gardens, Ilford, was first for a collection of Orchids, comprising some good *Cattleyas*; and Mr. H. James, Norwood, was first in the nurserymen's class for twelve Orchids with ordinary plants.

In the classes for plants we can only indicate some of the chief features, but the Show was largely composed of non-competing groups. *Pelargoniums* from Mr. C. Turner and Mr. Phillips of Slough occupied prominent positions, the plants compact bright specimens of moderate size. Mr. Phillips and H. Little, Esq., were the chief exhibitors of Zonal *Pelargoniums*. Mr. A. Offer, Handcross Park Gardens, Crawley, was first for Palms, Ferns, and fine-foilage plants, exhibiting large specimens in good condition, his first prize six being extremely fresh and good, *Croton Mortii* of excellent colour. Mr. J. Ford, gardener to Sir Charles Pigott, Wexham Park, Slough, was second, with six fine-foilage and the same number of Ferns. Mr. F. Mould, Pewsey, was first for twelve stove and greenhouse plants, showing small specimens, similar examples gaining the first prize for six plants. Mr. Offer had the best six in the amateurs' class. Several other exhibits of poor quality came into this section, and a second prize was accorded for six plants of such an inferior character that it was a subject of common remark that the Judges had failed in their duties in awarding them a prize of any kind.

Caladiums were admirably shown by Messrs. Laing & Sons, Forest Hill, who won the first prize with well-grown highly coloured plants, *Raymond Lemoinei*, *Charlemagne*, *Leopold Robert*, *Ornatum*, *Madame J. Koechlin*, and *Princess Royal* being very notable.

Tuberous *Begonias* were represented by one excellent collection of twelve plants, which gained for H. Little, Esq., the leading prize. The plants were compact, bushy specimens, bearing fine flowers, both single and double varieties of great merit being shown.

FRUIT.

This was exhibited in fair condition for such an early date, and the competition in some of the classes, especially for black Grapes, was also keen. Mr. J. Edmonds, Bestwood Lodge Gardens, Nottingham, won the first prize for a collection of fruit, staging admirable samples of *Madresfield Court*, *Buckland*, and *Black Hamburg* Grapes, the first and last well coloured; a *Queen Pine*, *Hales' Early Peaches*, *Lord Napier Nectarines*, four good *Melons*, *Sir Joseph Paxton Strawberries*, *Black Circassian Cherries*, and *Washington Plums*. Mr. W. Robins, gardener to Colonel E. Dyke Lee, Hartwell House, Aylesbury, was second with four dishes of fine Peaches, fine *Melons*, and small Grapes.

Five baskets of black Grapes were staged, all very good and even in quality. Mr. T. Osman, gardener to L. J. Baker, Esq., Ottershaw Park, Chertsey, was first for *Black Hamburgs* in superb condition, Messrs. Clinging and Edmonds following in that order. Mr. Feist of Staines had the best basket of white Grapes, *Muscat of Alexandria*, Messrs. A. Smith and Clinging following with *Foster's Seedling*. Six competitors entered with three bunches of *Black Hamburgs*, Mr. Osman leading with fine even examples bearing good bloom. Messrs. Edmonds and Feist were second and third. *Madresfield Court Grapes* were wanting in colour. The prizes went to Messrs. G. Thomson, Clinging, and Feist. Mr. Feist was first with *Muscat of Alexandria*, and Mr. Clinging first in the white Grape class with *Foster's Seedling*.

Mr. J. Douglas won first honours both with Peaches and Nectarines, and Mr. W. H. Divers, Ketton Hall Gardens, Stamford, was first for *Laxton's Noble* and *Auguste Nicaise Strawberries*. Mr. Hudson, gardener to the Messrs. Rothschild, Gunnersbury, was accorded the first prize for a box of grand *Lord Napier Nectarines*, large and highly coloured fruits.

MISCELLANEOUS.

The non-competing collections were very numerous and of exceptionally fine quality throughout; indeed but for them and the fruit the Show would have been an extremely poor one as compared with what used to be seen at Regent's Park. Messrs. T. Rivers & Son, Sawbridge-worth, showed a group of fruit trees in pots, including Peaches, Nectarines, Pears, Apples, Cherries, Oranges, &c. (large silver medal).

Messrs. B. S. Williams, Upper Holloway, had a magnificent group of Orchids, comprising a great diversity of excellent forms and arranged with much taste. In numbers of plants and flowers it was one of the best groups this firm has staged (silver-gilt medal).

Messrs. John Laing & Sons, Forest Hill, contributed an extensive and imposing group of fine-foilage and flowering plants, Tuberous *Begonias* and Orchids being conspicuous (silver-gilt medal).

Messrs. Wm. Paul & Son, Waltham Cross, had an effective group of pyramidal Ivies, with boxes of *Rhododendrons*, *Roses*, *Lilies*, and hardy flowers (silver-gilt medal).

Messrs. Sander & Co., St. Albans, had a handsome group of Orchids tastefully arranged with small Ferns and *Arundinaria falcata*, producing a capital effect. *Odontoglossum vexillarium*, *O. crispum*, and *Masdevallia Harryana* varieties were strongly represented (silver-gilt medal).

Messrs. Low & Co., Clapton, had a group of Orchids (silver medal). Mr. T. S. Ware, Tottenham, a group of *Pæonies* (bronze medal). Messrs. B. S. Williams & Son, Upper Holloway, a group of *Sarracenias* and new plants. Messrs. Kelway & Son, Langport, a large collection of *Pæonies*, &c., similar to that shown at the Drill Hall on the previous day (silver-gilt medal). Mr. C. Turner, a group of *Pelargoniums* (bronze medal). Mr. G. T. White, Winchmore Hill, a group of Orchids (silver medal). Messrs. H. Cannell & Sons, Swanley, group of Tuberous *Begonias* (silver medal). Messrs. Paul & Son, Chesbunt, collection of *Pæonies* and hardy flowers (bronze medal).

In the cut flower classes Mr. J. Douglas was first for Orchids, Mr. H. James for stove and greenhouse flowers, Mr. C. Turner for *Pelargoniums*, and Messrs. Barr & Son for *Iris*es and *Ixias*. *Roses* were shown by Mr. Rohins, Colonel Pitt, Mr. Prince, Mr. Mount, and Mr. Dyke.

Certificates were awarded with considerable liberality, but we cannot give a list in the present issue. It need only be remarked that Mr. Smees' *Cattleya Mendeli Hackbridgensis* and Mr. Hollington's *Cypripedium Aylingi* were certificated, the latter for the second time, and the former securing an award it well deserved.



FRUIT FORCING.

PEACHES AND NECTARINES.—Early Houses.—In houses that contain successional varieties the fruit of individual trees will be cleared in advance as regards some of the others, and when this is the case the wood upon which it has been produced should be cut away to a shoot at its base, which is to afford the bearing wood of next season, except the fruit has been produced on wood that it is necessary to retain for the extension of the trees. All growths not absolutely necessary for bearing next season or the extension of the trees should be cut away, as it is important that the foliage be fully exposed to the influence of light and air, and it is equally important that it be kept beathful and die naturally. Employ the syringe or engine freely, keeping the inside borders well watered, and the outside borders must not be neglected if the weather be dry. All the air possible should be admitted, and when the buds are plump and the wood thoroughly ripened, the roof lights where moveable (and they ought to be in all early forced structures for stone fruits, excepting Grapes) may be taken off, whereby the trees will be much invigorated, and it will mostly prevent buds falling, one of the chief causes of this being dryness of the soil at the roots, and the alternating heat and cold occasioned by the retention of the roof lights when the trees should have complete rest.

Second Early House.—No Peach can vie with *Royal George* for certainty in early forcing. It is a full month or six weeks behind some in ripening, but it is well worth waiting for, as the crop is good, the colour high, and the quality good. *Early York* and *Early Alfred* are fine and well coloured fruits, quite equal to *Royal George* in that respect, but the trees are not at all comparable to *Royal George* for crop. Both have a habit of casting their buds or of premature development, and the large flowered Peaches have all more or less the same propensity. Great care is necessary in handling the fruit when gathering, as slight pressure is sufficient to spoil the appearance. Fruit for packing should be gathered before it is quite ripe, and all is better taken from the trees rather under than over ripe. Some soft netting suspended beneath the trees is useful to prevent fruits that fall from getting bruised. Ventilate freely, admitting a little air constantly, and to insure the necessary moisture so essential for the preservation of the foliage in health, sprinkle the paths and borders in the morning and afternoon, not allowing the soil to become dry, but giving water as required to maintain it in a moist healthy state. A mulching, it must only be light, of short material, such as Mushroom bed refuse, or some material not rich in ammonia, may be used with advantage in keeping the earth from cracking and the roots near the surface, for when deprived of moisture they descend in quest of it, and long-jointed sappy growths with imperfect setting and casting of the fruit in stoning is engendered. Syringing must cease directly the fruit commences to soften for ripen-

ing, or the moisture will cause the skin to crack, spoiling its appearance, and leaving or giving an unpleasant musty flavour. Some kinds, as Noblesse, are apt to be spotted at the apex when exposed to the full glare of the sun under large panes of glass. A piece of paper tied to the trellis sufficiently large to reach over the fruit, or be drawn aside as required, is useful in preventing sun-burning, the paper being kept clear of the fruit, but so as to shield it from scorching sun, which insures more regular ripening, and the fruit having had full exposure during its growing season it will colour quite as well as if exposed in the last stages of ripening to its rays, which in the middle of the day are intense and heat the fruit to a high degree. The shade is only to be used during very bright weather for a few hours in the hottest part of the day. The paper shade secures very even ripening of the tender fleshed varieties, which in such varieties as Noblesse are, despite their paleness, the very highest in quality.

Trees Started at the New Year.—Halc's Early, A Bec, and Royal George, with Grosse Mignonne ripen successively from the beginning of June. They are best brought on slowly. It gives time for the development of the fruit in its various stages, and it insures, with due regard to ventilation, sturdy well-formed wood, and stout-textured foliage. These are matters of vital importance in forcing, it being essential that the trees be brought on gently and in accordance with the weather or external influences, which will exert influence on the fruit. It will certainly be a little later, but it will be heavier, and its juices being more fully elaborated be much higher in quality—indeed, where quality is wanted it, like good workmanship, must be allowed proper time. Mere size and even colour can be had, but there is no comparison of the fruit ripened in a high and moist atmosphere, also rather close, as compared with fruit finished in a well ventilated and naturally aided structure, no more artificial heat being employed than is necessary for the safety and gradual progress of the crop. There is a still further difference, that the fruits in the stage prior to stoning attain to a much larger size, and they make more rapid progress after that process is completed than those having more heat during the early stages. Then there is a difference as to the time of month the trees are started, also as to the treatment of the trees during the resting period. Those that have fixed roofs may, if the weather have been mild, have the buds advanced in swelling when the house is closed, whilst those that have been exposed will be fully a fortnight behind, assuming them to be started at the same time. These are matters requiring notice in calculating the time the fruit is to be ripe. After stoning the fruits assume colour and flesh quickly; every attention should therefore be given the trees in watering, either with liquid manure or affording water through a mulch of rather short and thin lumpy manure. The shoots should be allowed to extend, so as to appropriate any excess of aliment whilst insuring a full supply, not pinching the laterals too closely; but they and all growths must be kept from shading the fruit, which must be raised with its apex to the fullest light, which in fact ought to be attended to in the stoning period, as the more colour really the more highly its juices are elaborated and assimilated from the commencement the more perfect the fruit will be in colour and in quality. This can be effected by laths placed across the trellis and secured to the wires. Continue forcible syringings in all cases morning and afternoon until the fruit commences to ripen, then cease syringing, but do not allow the border and other surfaces to become parchingly dry, as moderate air moisture, provided the ventilation is liberal, will not injure the fruit, and it is absolutely necessary for the benefit of the foliage, the thorough maturity of the wood, and the perfecting of the buds for next season's crop of fruit.

Trees Started in February.—Whilst stoning the temperature should be kept equable, and great care taken not to allow the heat to rise too high in the morning without ventilation, for the closeness prevents evaporation from the fruit, and air given after the temperature has risen to 80° and then full ventilation so causes the fruit and foliage to evaporate that it causes a chill, and also so severe a strain on the supply of sap that the foliage becomes limp, if it not actually flags, and the consequence is the fruit turns pale, and it falls in showers in the course of a few days. It was caused by inattention to early ventilation and the inaptitude of meeting contingencies as they arise, for had but a little air been given it is probable the chill and deprivation of nutriment would have been avoided and the crop saved. There must not be any deficiency of water at the roots, and the foliage must be kept clean by daily syringing, and if necessary the prompt application of an insecticide at a safe strength. Continue the temperature at 60° to 65° artificially, and a free circulation of air between 70° and 75°, having it full when the latter is reached, and close at 75° with plenty of atmospheric moisture. If the temperature rise to 80° or 85° it will not do any harm, but admit a little air before nightfall, so as to allow the pent up moisture to escape, and the temperature to gradually cool through the night. Commence increasing the ventilation with the advancing heat from 65°, erring on the side of safety. Peaches seldom cast their fruit in stoning outside, a clear indication of its being accelerated by the vicissitudes incidental to forcing operations, and pointing to the necessity of early and at all times judicious ventilation. More disasters arise through inattention to routine than anything else, close attention to details having its outcome in the most perfect product.

Late Houses.—Late Peaches are even more desirable than early ones. They make a fine display at dessert, and are as regards quality very much improved in the newer varieties, such as Sea Eagle and Gladstone. They afford a supply up to mid October, and are simply superb. The borders must have proper supplies of water, or if the trees are weakly and carrying full crops, supplies of liquid manure; those at all vigorous

and carrying thin crops of fruit should be given water only, and if possible affording them a freer circulation of air, so as to insure the more complete elaboration of the sap. Train the growths thinly and keep the laterals well in hand. There is no remedy for unfruitful and over-vigorous trees but root-pruning or lifting, which should be duly attended to in autumn. Keep the foliage clean and healthy, but do not syringe on dull days, and always sufficiently early to allow the foliage to become dry before nightfall. A light mulching will be beneficial to trees carrying full crops, accelerating the formation of roots and keeping them near the surface, so as to render them more free in transmitting support. It is necessary not to overburden the trees with more fruit in the early stages of growth than is necessary to remain for the crop, and a moderate crop is always better than a heavy one; therefore thin well in the earlier stages, leaving a few more only to meet casualties than will be required ultimately. If aphides exist fumigate moderately on two or three consecutive evenings, or apply an insecticide at an efficacious and safe strength, as fumigation unless very carefully practised is liable to cause serious disfigurement of the foliage and often prejudices the crop more than is credited.

THE FLOWER GARDEN.

Flower Beds in Hot Weather.—Repeatedly drenching the ground with cold hard water is by no means conducive to the healthy growth of tender plants put out. The wiser course is to plant firmly and well, watering them in at the same time, yet another watering being necessary if the ground was in a somewhat dry state at planting time. Pelargoniums and other kinds put out with a good ball of soil and roots soon commence active growth, and subsequently all that is necessary in this case is to lightly stir and level the surface of the beds and borders with small Dutch hoes. This serves to give the beds a neater appearance, and will also prevent the loss of much moisture by evaporation. A mulching of spent manure, leaf soil, cocoa-nut fibre, or the short grass from mowing machine also greatly saves the watering pot. All quite small and not well-rooted plants will recover most quickly if lightly shaded with branches of trees during very hot weather, and these should also be freshened, but not saturated, with water in the evening.

Thinning Annuals.—Seeds have germinated strongly and well this season, and in very many instances if the plants are left to grow as thickly as they have come up, the floral display will be a short one, the quality of the flowers also being poor. Those that especially need to be freely thinned out in order to give every plant a chance to branch and grow strongly are Balsams, Cape Marigolds, Coreopsis, Candytuft, Chrysanthemums, Clarkias, Convolvulus, Eschscholtzias, Godetias, Helichrysams, Hibiscus, Lupins, Malopes, Nasturtiums, Sweet Peas, Poppies, Mignonette, Sweet Sultans, and Sunflowers. Transplanting may be attempted in some instances, but success will depend largely upon the state of the weather. During the prevalence of dull showery weather quite small plants may be lifted from among others with a label, and safely transplanted elsewhere, but it is of little use replanting any drawn out.

Roses.—It is not often that those growing against sheltered or sunny walls flower better than they are doing this season, and there was never more blight or green fly on Roses generally, caterpillars also being far too abundant. Hand-picking is the best remedy for the latter, the caterpillars being removed with the damaged leaves, in which most of them will be found enclosed. Heavy rains or thunderstorms will frequently do much towards clearing the plants of aphids, but those who wish to have healthy bushes and good bloom must not wait for these. Well syringe the bushes and trees with either tobacco water or a decoction of quassia chips and softsoap, repeating this a second or third time if necessary. Soak either 1 lb. of tobacco paper, or 4 ozs. of shag tobacco, in a gallon of hot soft water in which 4 ozs. of softsoap has been previously dissolved, and well syringe the trees with this when it has cooled. Half a pound of quassia chips may be boiled for fifteen minutes, or rather longer, in a gallon of soft water, 8 ozs. of softsoap being added at the finish. Strain off this solution, dilute with 12 gallons of water, and then thoroughly wet all the affected branches with it. Ordinary soapsuds or water made soapy will do much towards clearing Rose trees of green fly, especially if it is forcibly applied with an engine.

Thinning Rose Buds, Watering.—Large fully developed blooms are by far the most beautiful and generally serviceable. In order to be certain of these, thinning out the buds and feeding at the roots must be resorted to at the present time. The timely removal of all small and deformed side buds naturally greatly benefits those retained, and it is far from being tedious work. Small weakly growths, with or without buds attached, might also be removed with advantage, thinly grown vigorous shoots being the easiest to keep in a healthy clean state. Starvation treatment at the roots is never attended by fine blooms, and in the case of those trees against walls especially mildew is invariably in the ascendant. The latter at any rate rarely get enough water and liquid manure, yet they pay better than any for a little attention and labour in that direction. It is quite useless to give dribbles to Roses wherever located. First form a basin by loosening and lightly forking back the soil from wall trees, and after the ground has been well soaked with clear water apply liquid manure of some kind. Those newly planted ought to be prevented from flowering freely, and these this season have already required to be watered frequently.

Mulching Shrubberies.—Flowering shrubs generally have been exceptionally floriferous this season, and in many instances the whole are

showing signs of being somewhat exhausted and impoverished at the roots. Especially is the case with Rhododendrons planted on shallow hot soils and in small beds prepared specially for them. The rainfall during the past winter and spring was far below the average, and a fierce sunshine, accompanied by parching easterly winds, has not improved matters. Any shrubberies that are not well established, or in a flourishing condition, ought to be mulched with short manure if it could be spared, or else old hotbed material, such as a mixture of leaves and stable manure. The least that can be done is to evenly spread all the grass from the mowing machines over the surface of the beds, this, besides enclosing moisture somewhat, also in time becoming good food for the roots. The stronger growing herbaceous plants are great impoverishers of the ground, and are among the first to require moisture at the roots.

Newly Moved Trees and Shrubs.—Medium-sized to large specimens now require to be watered, this being particularly necessary in the case of those transplanted in the spring. In many instances a good soaking might advantageously have been given a month ago, and it may be too late to save the life of those very dry at the roots. Signs of failure must not be waited for, as then it is usually too late. Well loosen the surface of the soil to a good distance from the stems, and in many cases it is further necessary to form a basin with the aid of this loose soil, or otherwise a thorough soaking, and which only is of any avail, cannot be given. No half measures or driblets will answer. Those at all top-heavy ought to be properly staked, or they will make little or no progress.

THE BEE-KEEPER.

BEE-KEEPING.

As a hobby or as an industry bee-keeping is remunerative. Bees are useful and profitable in more ways than one, giving an abundance of honey. They roam at will far and near, return to their hive and to their owner's premises, requiring neither caging nor fencing of any kind to prevent their straying. As decorators of our earth they are pre-eminent, by their aid flowers assume new forms and colours. The walls of a hive may be rude, but the waxen cells are beautiful, and a work of high art and precision. No external appearances or internal structure alters their plans beyond adapting themselves to circumstances. Idleness is unknown in the hive of the honey bee, the more work is performed the greater the rejoicing. Cleanliness goes with order, and prosperity follows them. The utmost order prevails, no special work has to be performed by any bee or class of bees, all are alike capable of performing the requirements of the hive, from secreting of the wax to closing the cell. Young bees for a few days after hatching may be an exception in some respects, but they commence when but a few hours old to nurse their younger sisters, and in a few days from their birth go abroad to collect for the common wealth of the hive and their owner.

These traits and qualities of bees are in themselves sufficient to induce many to keep and study them, not entirely as an industry, but as an auxiliary to their daily vocation. When started as an industry monopoly springs up, a few only are benefited, and the many are deprived of the privilege they are entitled to. I speak of the British Isles. There are places on the continent where honey can only be gathered by the bees of the extensive bee-keeper, and were it not for him the honey would be lost to the world. As it is, in this country many bee-keepers are so situated that the yield of honey would be nil if they did not move their bees about from one place to another as the flora of the districts appeared. Some are so favourably situated as to have fruit and Sycamore blossoms, Charlock, Clover, and Heather within easy flight of their apiary. Some have to remove them to the first and last named, while others have nothing but the first named to depend upon without moving their hives, while others, again, have nothing but the Clover to depend upon.

The foregoing reveals the fact that while bees may prove very profitable to some they are much less so to others, the labour and expense alone of moving bees being greater to the latter than all the expenses of the former together. Happily, however, moving bees from one place to another, if done at the proper time stimu-

lates the bees, and stronger hives with a much larger yield of honey is the result.

THE TIME TO BEGIN BEE-KEEPING.

Perhaps the best and most interesting time to start this instructive and profitable hobby is about now. Bees are busy carrying and storing honey and pollen. Young bees and drones are hatching and airing themselves, and the bee-keeper is filled with high hopes of a speedy return for money laid out in the shape of a large yield of honey, and all within a few weeks of his first possession—no weary waiting and disappointment, with care and trouble as if the bees were purchased in autumn.

HOW BEST TO INITIATE NOVICES.

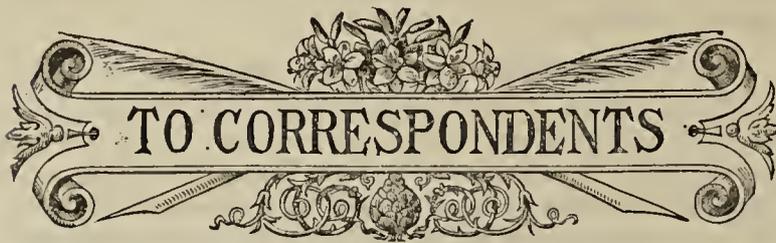
There are so many methods of keeping bees that it is not an easy matter to lay down a rule or rules applicable to all of them. It is not in teaching what to do that the difficulty lies, but not what to do. A few hints in connection with our own and neighbours' apiaries may be seasonable and welcome. The first one is important.

DISCARD SPRING FEEDING.

We have hinted at that often, but this season, like 1889, has been destructive to bee life. Hives that have had no feeding have lost fewest bees, and, unlike stimulated hives, the queens are most vigorous and will last longest. Three weeks of wintry weather followed six of the finest days from 1st till 6th April, we ever experienced at that season. During that cold period it was observed that stocks with large stores flew but little, while fed bees flew much, the loss of them being so great that what were strong stocks the first week in April have fewer bees now than they had then. Everywhere I go this is the case. The last day of April and the three first of May were lovely days, but since then we have had uncongenial and stormy weather, culminating on Tuesday evening, the 3rd June, in one of the severest storms ever experienced in that month, doing much damage to garden crops, fruit trees, and bushes. The result of such weather is, as I suspected, no Cherries, and Plums in some places are a failure. On Friday, Saturday, and Sunday, 30th and 31st May, and 1st June, the mean temperature was only 40°; the thermometer, however, never sank below 30°, and no damage by frost has been recorded, although ice was formed upon sheets of water a mile distant moorward. During the whole of that time, and up to the present, many bees are being lost, and swarms are much depopulated. Virgin swarms on this account will in all probability be numerous this year, not because of prosperity, but of the laying powers of the queens being impaired. The secret of preserving the bees is to have

PROFITABLE HIVES.

Disbelieve most that is said about pollen-clogged hives in the autumn; never take advice to remove it from the hive, nor of crowding bees in winter, nor spreading brood and feeding in spring. If these hints be unheeded the bee-keeper will find his hives almost crowding out long before the time a hive could be opened up and operated upon with safety, and without a single drop of syrup having been given, or the more questionable practice of breaking the seals of honey. If bee-keeping is to become practicable, profitable, and simple the plans I am teaching and have practised should be studied. Foul brood, that dreaded scourge to bees and obstruction to profitable bee-keeping, is propagated and perpetuated by these plans I condemn. An article could be written upon it that would surprise the advocates of the system, but like other ideas I have given in these pages might be appropriated, so will for obvious reasons, as "A Hallamshire Bee-keeper" did, "give them a chance of finding" out before divulging my knowledge. While this backward weather continues attend to feeding all stocks, likely to kill drones or draw brood, but better do so before it begins, and remember that bees kept upon ten standard frames are less profitable than when kept in a hive nearly double the size.—
A LANARKSHIRE BEE-KEEPER.



TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

A Peculiar Gloxinia (H. S.).—We have seen similar instances before; it is an approach to a duplex form with the outer corolla split into distinct lobes.

Aquilegas (R. C. N.).—They are extremely good and varied in colour, but from seed of what are termed "hybrid strains" flowers of equally fine characters are now easily obtained.

Insects on Apple Blossom (J. H., Astwood Bank).—Your trees are evidently infested with the Apple chermes (*Psylla Mali*). See the recommendation in another reply. The species is abundant this season in some places. You have also enclosed caterpillars of the winter moth, so that species has also been doing mischief. The method of dealing with this is fully discussed in last week's issue.

Lists of Flower Shows (S. R.).—We have no such list of shows as you desire, and have not cognizance of shows other than those which are advertised or of which we receive schedules. There is a list of horticultural societies, with their secretaries, in the "Horticultural Directory," and you could obtain a reply from any of them by return post card.

Kainit for Roses (Kittie).—As this salt contains a large percentage of potash, and as this is a constituent of Roses, a dressing to your beds would be certainly beneficial if the soil is weak in that essential, and in any case will not be likely to do harm. Some samples, however, contain a considerable amount of common salt, and this is not good for cold wet land, though it is for dry soils. You may sprinkle kainit on the soil at the rate of 2 ozs. to each square yard, and afterwards run the hoe through the surface. It is not only good manurially, but makes slugs very uncomfortable.

Blenheim Pippin Apple Shoots Withered (P. H. W.).—The shoots are dried, and have probably suffered through the trees being kept a considerable time out of the ground, or they may have been injured through freezing and handling before planting. Certainly they have had their tissue destroyed by some means, the sap not being able to penetrate the damaged parts. There is no trace of canker, and it is a case that requires explanation, which we think none is so likely to afford as the vendor of the trees. No damage seems to have resulted from the pruning, the tissue being entirely destroyed, and no doubt prior to the pruning, although the wood might not show the defective condition until it was subjected to the increased evaporation of the advanced season.

Narcissus Buds Withering (J. S.).—The flower buds of *Narcissus poeticus* flore-pleno are somewhat prone to shrivel, and the misfortune appears more prevalent during some seasons than others, probably in consequence of a check to free growth through weather influences. We have observed also that the occurrence is the most frequent when the plants have been so long established in their positions that they have deprived the soil of essential constituents. Similar results in the buds failing occur when bulbs are planted too late, and the root-action consequently inadequate for supporting the plants at the time of flowering. Growers of flowers for market do not like to allow the bulbs to remain in the ground more than two years, and some replant every year in deep well enriched soil early in August. The leaves and stems you have sent are very weak.

Nitrate of Soda for Vines (W. H. H.).—You ask if "nitrate of soda is good for stimulating the growth of Grape Vines." It will stimulate the growth of anything, but unless the soil also contains calcareous and potassic matter, the growth of Vines so stimulated is not substantial. Young Vines growing in a recently made border, or young fruit trees and bushes, may often be usefully assisted by a dressing of the fertiliser, as they will by the freer growth incited appropriate more of the mineral food that the fresh soil contains; but if nitrate of soda is alone used year after year, it follows that the soil must be deprived of essential constituents by the increased growth incited. Some growers of Grapes who crop their Vines heavily take

care that the soil is well fortified with minerals for the wood, then after the Grapes are thinned they apply nitrate of soda to feed the fruit.

Apple Chermes (*Psylla Mali*).—It has been stated that the most efficacious wash for the destruction of this pest is one containing sulphuret of lime. This may be made by combining the sulphuret with water, or more conveniently by boiling together sulphur and lime in the proportion of one pound of sulphur and two of lime to four gallons of water. Tobacco water also kills them, with or without the addition of Gishurst compound, but the difficulty is to reach the insects secluded as they are in the blossoms. In fact, not much can be done during the spring, and the time for the destruction of chermes is the winter. Those who are to be the parents of the new brood lodge within cracks of the bark, angles and ridges of twigs, and the like places of shelter, where, however, they may be reached and killed by copious syringing with a hot solution of softsoap. A little petroleum has been added, but it is not necessary.

Stimulants for Plants (*Inquirer*).—Guano and nitrate of soda would be more likely to retard than accelerate the flowering of seedling Zonal Pelargoniums and Fuchsias, that appear, as you say, to "make too much growth." The former should be much root-bound, and stood in a hot sunny position in the open air, giving only sufficient water to prevent the leaves flagging. The stems will then get hard and flower buds form, when a weak liquid stimulant may be given. If you have plants from cuttings and the pots are filled with roots, a stimulant might be beneficial if the plants have abundance of air and sun. A quarter of an ounce each of the two manures named will be ample for a gallon of water, and we should commence with less rather than more, twice a week. The Fuchsia will probably flower if it is stood in a shaded position in the open air and not allowed to suffer by want of water. The finest specimens exhibited are grown outdoors from May till September.

Prunuses (C. L.).—Your Prunuses will be too tall and loose for table decoration. After flowering they should be cut close back, leaving about two eyes of the previous season's wood. We advise you to cut them back now and push them into growth and thoroughly ripen their shoots indoors. Potting should be done after they have been cut back and have started into growth. If you wish to confine them to a certain sized pot they will bear the reduction of their roots by at least one-third, so that they can be conveniently placed in the same size again. It is a good plan to raise a few plants annually by inserting cuttings in sandy soil after the plants have flowered, covering them with a bell-glass, and placing them in brisk heat. The cuttings should be about 3 inches in length, and slipped off with a sharp knife close to where they issue from the shoot of the previous year. Cuttings of *Cytisus* will root freely if inserted in autumn. Nearly all who grow for the market insert their cuttings towards autumn, and then they are ready for potting early in the year, and make good plants the first season. We shall always cheerfully answer any question you may send, in the hope that our replies will be useful.

Peach Leaves Silvered (*Pericles*).—The leaves present the appearance of what is termed the "silver leaf" in Plums, and is caused by a separation of the skins. It is probably due to a deficiency of potassic and phosphatic matter in the soil, so that the sun acting on the tissues of the leaves heats the watery particles, but not to the extent of scorching the tissue, and causes the separation of the skins through a defective deposition of the chlorophyl—the green, resinous, granular colouring matter of plants. This, however, is not wanting in the leaves sent, and they are not more injured than often occurs through excessive fumigation. With a more adequate supply of the elements named and less watery matter the deposition of chlorophyl will take place, and the leaves assume a better colour, though they may remain more or less glaucous. The leaves are thin in tissue, and the wood is long-jointed. The tree is advancing rapidly in the direction of gum and imperfect stoning, due to excessive but ill assimilated food. Let the leaves have more air and more space, so that they can perform their functions better, elaborating and assimilating the food. Storing it in the wood and buds gives colour in due course to foliage and fruit.

Garden Self-supporting (St. J. A.).—We see no reason why your proposed scheme of growing enough Tomatoes, in houses specially constructed for their culture, to pay all expenses connected with your small garden, should not answer well. Too often, when owners of property have conceived somewhat similiar ideas, they expect far too much from the conveniences for growing flowers and fruit, and in but few instances have the results been satisfactory. You are going to work in a far more sensible manner, the experience gained on the Channel Islands being especially valuable. What you say concerning the disadvantages under which the enterprising growers in Jersey and Guernsey labour is quite correct, and any competent person in the southern counties of England ought to be able to compete successfully with them. They have a slight advantage in the geniality of the climate, but in all probability the more humid atmosphere they may have to contend with is far more favourable to the spread of atmospheric diseases than is the case generally on the mainland. Your greatest difficulty will be in getting a suitable man, but as you offer fair remuneration many gardeners might be glad to be engaged. There is no necessity for you to withdraw from active work altogether, and perhaps at the outset your knowledge gained by observation elsewhere would be of the greatest value. We do not think the prices of Tomatoes will fall materially, or at all events

below remunerative rates, the demand for them still being on the increase. You ought to have plenty for sale when they would fetch 1s. per lb., and good crops pay well at 4d. even. "The Tomato; its Culture and Uses," by Mr. W. Iggulden, published at this office, post free 1s. 1½d., would be of service to you, and for advice concerning the management of young fruit trees you cannot do better than to follow the advice given in the essay you possess. On pp. 95 and 96 you will find the information you desire on oblique cordons given concisely.

Managing Vineries (Young Gardener).—In the house where the Grapes are colouring there must be a circulation of warm rather dry air constantly, but anything approaching aridity must be scrupulously avoided, for the reason that the Grapes swell considerably while colouring, and the foliage must be preserved in good health alike for the perfection of the current crop, and for storing the wood and buds with assimilated matter for the future. Secure in the early house a temperature of 70° to 75° by day artificially, and a night temperature of 60° to 65°, allowing a rise to 80° or 85° from sun heat in the daytime, with a free circulation of air; reduce the ventilation at 80°, but not so early as to cause the temperature to rise above 85° or 90°, and leave about a couple of inches of ventilation on both top and bottom always, increasing the top ventilation early so as to allow the berries to steadily increase in warmth with the gradually increasing temperature. Sprinkle the floors, border, &c., in the morning and early afternoon, diminishing the moisture as the Grapes attain thorough ripeness, when a temperature of 60° will meet all their requirements, then admitting air early and keeping the house as cool as possible through the day; but excessive ventilation is not good, as the foliage will evaporate in proportion to the dryness of the air, causing premature ripening, therefore draw a double thickness of herring net over the roof lights to break the fierce rays of the sun and lessen the need of so much ventilation. It is also a good plan in early houses to allow the laterals a little liberty, alike to afford shade for the fruit and to maintain the roots active, so as to prevent premature ripening of the foliage, but the laterals must not interfere with the light and air to the base leaves, or those corresponding to the pruning buds, and from which the shoots giving the Grapes of the succeeding crop will in due course emanate. In the house where the Grapes are swelling a night temperature of 60° to 65° is ample, 70° to 75° by day artificially, 80° to 85° from sun heat, with increased ventilation commencing from 70° to 75°, but do not cause a check by an influx of cold air; the temperature never ought to be reduced in ventilation, but prevented rising to a prejudicial degree. Close between 80° and 85°, and sufficiently early to allow the temperature to remain some time about 85° or 90°, at the same time damping the house well, and before nightfall admit a little air through the top ventilators, so as to allow the pent-up moisture to escape and the temperature to gradually cool down to the minimum, or 60° to 65°, artificial heat only being necessary to prevent it from falling below 60°, and to keep it over 65°, preferably 70° to 75° in the daytime. Watering will need to be attended to as required, giving it thoroughly when necessary, and if the Vines are carrying heavy or full crops, afford liquid manure, or a sprinkling of artificial, washing in this for inside borders. It may be required once a week, or less frequently, according to circumstances. Outside borders will only need watering when the weather is dry, but in all cases give a supply when the soil is getting dry, avoiding needless waterings. The house should be sprinkled in the morning before breakfast, and the ventilation attended to early, or the direct consequences may result. The Peach tree in the late vinery should be well syringed in the morning early, and in the afternoon, or about 5 P.M. at this time of year, but it may be done at the time of closing the house, which on account of the Peach tree must not be very early, and not so as to raise the temperature over 80° to 85° until the stoning is completed, but it is not so much the late as the early high temperature that causes Peaches to cast the incipient fruit. Ventilate in this case from 65°, increasing it with the sun heat, keeping through the day between 80° and 85° from sun heat, and 65° to 70° from fire heat in dull periods. It is a mistake to have Peach trees in late vineries, particularly when the varieties are heat-requiring and need a long time to ripen. The temperature should be kept at 60° to 65° at night, and it is always wise to leave a little air on at night, alike to prevent disaster from errors in early ventilation, and the temperature from being high and the atmosphere stifling, as changed air is a necessity for the health of the trees.

Names of Fruits.—The names and addresses of senders of fruit to be named must in all cases be enclosed with the specimens, whether letters referring to the fruit are sent by post or not. The names are not necessarily required for publication, initials sufficing for that. Only six specimens can be named at once, and any beyond that number cannot be published. (T. G.).—Early Grosse Mignonne Peach.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (T. S.).—As you may see above, we only undertake to name species of plants, not varieties, and all those you send come under the latter category. Nurserymen who make a speciality of such plants might, perhaps, oblige by naming them for you if you enclose a stamped directed envelope for a reply. They can only be determined by com-

parison. The Carnation you name is a hardy plant. We cannot say what judges and show officials would do under the circumstances suggested. (J. P. S.).—Roses are florists' flowers, and we do not undertake to name them. See our reply to "T. S." There is a difference in the imperfect blooms sent, but whether this is due to age or variety is not clear. They would grow in a suitable position in pots for flowering under glass in spring, placing them outdoors in summer. (R. H.).—The Scotch Lahurnum, *Cytisus alpinus*. (A. B.).—1, *Polystichum aculeatum*; 2, *Todea superba*. (R. J.).—1, *Maxillaria tenuifolia*; 2, *Oncidium sphacelatum*; 3, *Dendrobium moschatum cupreum*. (H. J. W.).—1, *Veronica gentianoides*; 2, Cannot be determined without flowers.

COVENT GARDEN MARKET.—JUNE 11TH.

BUSINESS keeps brisk with good supplies, and prices remaining as last week.

		s. d.		s. d.		FRUIT.		s. d.		s. d.	
Apples, ½ sieve	.. .. .	2	0	6	0	Melons, each	.. .. .	2	0	4	0
" Nova Scotia and Canada, per barrel	18	0	25	0	Oranges, per 100	.. .. .	4	0	9	0	
" Tasmanian, p. case	15	0	0	0	Peaches, dozen	.. .. .	4	0	18	0	
Grapes, per lb.	.. .. .	2	0	3	0	Red Currants, per ½ sieve	.. .. .	0	0	0	0
Lemons, case	.. .. .	10	0	15	0	St. Michael Pines, each	.. .. .	2	0	6	0
						Strawberries, per lb.	.. .. .	1	6	5	0

		s. d.		s. d.		VEGETABLES.		s. d.		s. d.	
Artichokes, dozen	.. .. .	0	0	0	0	Mushrooms, punnet	.. .. .	1	6	2	0
Asparagus, bundle	.. .. .	2	0	4	0	Mustard & Cress, punnet	.. .. .	0	2	0	0
Beans, Kidney, per lb.	.. .. .	1	6	0	0	Onions, bushel	.. .. .	3	0	4	0
Beet, Red, dozen	.. .. .	1	0	0	0	Parsley, dozen bunches	.. .. .	2	0	3	0
Brussels Sprouts, ½ sieve	.. .. .	0	0	0	0	Parsnips, dozen	.. .. .	1	0	0	0
Cabbage, dozen	.. .. .	1	6	0	0	Potatoes, per cwt.	.. .. .	3	0	4	0
Carrots, bunch	.. .. .	0	4	0	0	" New, per lb.	.. .. .	0	2	0	0
Cauliflowers, dozen	.. .. .	2	0	4	0	Rhubarb, bundle	.. .. .	0	2	0	0
Celery, bundle	.. .. .	1	0	1	3	Salsafy, bundle	.. .. .	1	0	1	6
Coleworts, doz. bunches	.. .. .	2	0	4	0	Scorzoneria, bundle	.. .. .	1	6	0	0
Cucumbers, doz.	.. .. .	2	0	3	6	Seakale, per bkt.	.. .. .	0	0	0	0
Endive, dozen	.. .. .	1	0	0	0	Shallots, per lb.	.. .. .	0	3	0	0
Herbs, bunch	.. .. .	0	2	0	0	Spinach, bushel	.. .. .	1	0	2	0
Leeks, bunch	.. .. .	0	2	0	0	Tomatoes, per lb.	.. .. .	1	0	1	3
Lettuce, dozen	.. .. .	0	9	1	3	Turnips, bunch	.. .. .	0	4	0	0

		s. d.		s. d.		CUT FLOWERS.		s. d.		s. d.	
Anemone, dozen bunches	.. .. .	1	0	4	0	Mignonette, 12 bunches	.. .. .	2	0	4	0
Arum Lilies, 12 blooms	.. .. .	2	0	4	0	" Fr., large bunch	.. .. .	1	6	2	0
Azalea, dozen sprays	.. .. .	0	6	1	0	Narcissus, 12 bunches	.. .. .	4	0	8	0
Bonvardias, bunch	.. .. .	0	6	1	0	Peony, dozen bunches	.. .. .	6	0	12	0
Carnations, 12 blooms	.. .. .	1	0	2	0	Pansies, dozen bunches	.. .. .	1	0	2	0
Calceolaria, doz. bunches	.. .. .	6	0	8	0	Pelargoniums, 12 trusses	.. .. .	0	9	1	0
Cornflower, doz. bunches	.. .. .	2	0	4	0	" scarlet, 12 bunches	.. .. .	4	0	6	0
Dentzia, per bunch	.. .. .	0	0	0	0	Pinks (white), doz. bchs.	.. .. .	3	0	6	0
Eucharis, dozen	.. .. .	4	0	6	0	Primula (double) 12 sprays	.. .. .	0	6	1	0
Forget-me-not, doz. bunches	.. .. .	1	6	4	0	" (single) 12 sprays	.. .. .	0	0	0	0
Gardenias, 12 blooms	.. .. .	1	6	3	0	Ranunculus, doz. bunches	.. .. .	2	0	4	0
Iris, various, dozen bunches	.. .. .	6	0	18	0	Roses (indoor), dozen	.. .. .	0	6	1	6
Lapageria, 12 blooms	.. .. .	2	0	4	0	" Moss (Fr.), doz. blm.	.. .. .	0	9	1	6
Lilac (Eng.), doz. bunches	.. .. .	0	0	0	0	" Red, 12 blooms	.. .. .	2	0	4	0
Lilium, various, 12 blms.	.. .. .	0	9	2	0	" Tea, white, dozen	.. .. .	1	0	3	0
" longiflorum, 12 blms.	.. .. .	3	0	6	0	" Yellow	.. .. .	2	0	4	0
Lily of the Valley, dozen sprays	.. .. .	0	6	1	0	Spiraea, dozen bunches	.. .. .	6	0	9	0
" dozen bunches	.. .. .	4	0	9	0	Tuberose, 12 blooms	.. .. .	0	6	1	0
Marguerites, 12 bunches	.. .. .	2	0	6	0	Tulips (Eng.), doz. bunch.	.. .. .	0	0	0	0
Maidenhair Fern, dozen bunches	.. .. .	4	0	9	0	Wallflowers, doz. bunches	.. .. .	2	0	4	0
						White Lilac, French, per bunch	.. .. .	4	0	5	0

		s. d.		s. d.		PLANTS IN POTS.		s. d.		s. d.	
Aralia Sieboldi, dozen	.. .. .	6	0	12	0	Geraniums, Ivy, per doz.	.. .. .	4	0	6	0
Arum Lilies, per dozen	.. .. .	8	0	12	0	" Scarlet, per doz.	.. .. .	4	0	6	0
Arbor Vitae (golden) doz.	.. .. .	6	0	8	0	Hydrangea, doz. pots	.. .. .	9	0	24	0
Azalea, various, per dozen	.. .. .	0	0	0	0	Lily of the Valley, 12 pots	.. .. .	0	0	0	0
Calceolaria, per doz.	.. .. .	6	0	9	0	Lobelia, per doz.	.. .. .	4	0	6	0
Climbing Plants, various, dozen pots	.. .. .	4	0	9	0	Marguerite Daisy, dozen	.. .. .	6	0	12	0
Cyclamen, per dozen	.. .. .	0	0	0	0	Mignonette, per dozen	.. .. .	5	0	8	0
Dentzia, 12 pots	.. .. .	0	0	0	0	Musk, per dozen	.. .. .	2	0	4	0
Dracena terminalis, doz.	.. .. .	24	0	42	0	Myrtles, dozen	.. .. .	6	0	12	0
" viridis, dozen	.. .. .	12	0	24	0	Nasturtiums, dozen pots	.. .. .	3	0	4	0
Epiphyllum, per dozen	.. .. .	0	0	0	0	Palms, in var., each	.. .. .	2	6	21	0
Erica, Cavendishi, per pt.	.. .. .	2	0	3	0	Pelargoniums, per doz.	.. .. .	9	0	18	0
" various, dozen	.. .. .	12	0	18	0	Rhodanthe, per dozen	.. .. .	6	0	9	0
" ventricosa, per doz.	.. .. .	12	0	18	0	Roses (Fairy), per dozen	.. .. .	8	0	10	0
Euonymus, var., dozen	.. .. .	6	0	18	0	" 12 pots	.. .. .	12	0	24	0
Evergreens, in var., dozen	.. .. .	6	0	24	0	Saxifraga pyramidalis, per dozen	.. .. .	18	0	24	0
Ferns, in variety, dozen	.. .. .	4	0	18	0	Spiraea, 12 pots	.. .. .	8	0	12	0
Ficus elastica, each	.. .. .	1	6	7	0	Stocks, per doz.	.. .. .	4	0	6	0
Foliage plants, var., each	.. .. .	2	0	10	0	Tropeolums, various, per dozen	.. .. .	3	0	6	0
Fuchsia, per doz.	.. .. .	4	0	9	0	Tulips, 12 pots	.. .. .	0	0	0	0
Genista, per dozen	.. .. .	8	0	12	0						

Bedding Plants in variety, in boxes and pots.



HAYMAKING.

JUDICIOUS economy has something to say to haymaking as a process beset with much uncertainty, anxiety, and exp

unsettled weather, and it prompts the inquiry if some curtailment of this work is not possible? It is undoubtedly possible by those who make hay chiefly for home consumption, and we devote a second paper to this subject to call special attention to the importance of retrenchment in this direction and of a considerable extension of ensilage, as well as to mark the importance of thoroughly good practice in both haymaking and ensilage. As novel terms are often troublesome, we may explain that the literal meaning of ensilage is the mode of preserving green fodder in a sweet, fresh, wholesome and nutritious condition as food for cattle and other animals of the farm; the fodder so preserved is termed silage. Haymaking never has obtained that recognition and importance north of the Trent which southern farmers assign it, and many a north countryman has never seen hay made at all. Yet we have seen some attempts to make hay in the highlands of Scotland by very primitive means, and there is no question that wherever fodder is stored for use in winter throughout Great Britain and Ireland, that ensilage will prove of immense advantage because of the facility with which it is done, the certainty of success under ordinary care, and the economy of the process in comparison with haymaking. Yet we have actually heard exception taken to silage upon the score of its heavy carriage in the green state from meadow to stack. Well, all we can say to that is, that the man who could make such a complaint would be a suitable companion for the dog who used to lean his head against the wall when he barked, and we are not writing for his benefit at all.

Undoubtedly a goodly lot of hayricks is a fine sight, and we must plead guilty to a feeling of much satisfaction when the ricks are finished, and our entire appreciation of such a character as George Eliot portrays in Kester Bale who knew the "natur" of all farming work, and who would walk to the rick yard on a Sunday morning in his best clothes to admire his own handiwork. That is the sort of feeling of which we want more in master and man, and then we should hear nothing about heavy carriage or an extra hour or two of work, but rather how well the work was done and how satisfactory was the result.

What is a good haycock? It is a heap of grass being made into hay so constructed as to throw off rain, and to expose as little of the hay as possible to it. To ensure this due care must be taken to keep the middle of the cock full, to press it together in the building sufficiently to ensure stability, and to make it so erect and tapering as to throw off rain as it falls. Two of the worst seasons for haymaking we remember were those of 1879 and 1888, and in both we saved the hay in fair condition by having recourse to haycocks, some of which remained unopened for an entire fortnight. Had those cocks been mere heaps thrown loosely together as we have so often seen done, the hay would have been spoilt, but they were made with all possible care, and though the hay was discoloured it eventually fermented well in the rick, and had plenty of flavour. A high authority upon matters agricultural has laid it down that the best full flavoured hay is of a rich brown hue; but we must take exception to this dictum, and assert our conviction born of long experience, that the very best hay has in addition to full flavour a bright green hue in token that no rain fell upon it after the mowing. It is true enough that mere colour is of no particular importance, and we have had green hay sadly deficient in flavour simply because it was not carted as soon as it ought to have been.

In stacking hay the aim is a mean between an undue green state and over-dryness, a gradual drying or evaporation of sap from the herbage being always most satisfactory. It is for this reason that one hears of the best hay being made in wet weather, as a scorching sun is liable to impart dryness to the touch, which is misleading, especially when there is much Clover or other soft growth among the herbage, and such hay stacked prematurely generally becomes overheated, and sometimes ignites and is destroyed by fire. It is for this reason that we advise the use of sack stuffed full of straw being built upright in the centre of

the bottom of the stack, and drawn upwards during the building of the stack, so as to form a sort of narrow chimney or safety valve, out of which the more violent heat can escape, to promote which the sack is withdrawn every night, and inserted when the building is begun again next day, and so on till the top is reached, when the sack is discarded altogether. The passage so made quite closes as the hay heats and settles down, so that anything like an objectionable permanent opening in the centre of the rick is avoided. We have seen various attempts at improvement upon this plan by means of open shafts of woodwork, but not one of them has proved equal to the effectual if primitive method we have described.

WORK ON THE HOME FARM.

What a good time we are having! We complain loudly enough about our fickle climate, but surely we can hardly find anything like a reasonable reason for a growl just now. The heavy land which became so hard during the dry weather at the beginning of May was softened sufficiently by timely showers to be got ready for the roots, and Swedes have never been got in better or come away more briskly into a good strong plant. Mangolds are also a fine, full, strong plant, and care has been taken to set right any faults of singling. This is a matter to be looked into closely, for as the singling is done by the acre there is wont to be much scamped work. A glaring example of this has again occurred in a thriving field of Swedes, where in walking over the work with our weeding spud we began pulling up plants left too thick. We soon found it was so generally all over the field, and had not only to complain of inefficient superintendence, but to withhold enough of the workmen's pay to ensure a proper finish being given to the work. Alas! how many times have we had to do this. Really shirking seems to be the order of the day, nor can we wonder when the rate of pay is brought down to starvation point; but where piecework is the rule, and it is possible for the men to earn fair wages, shirking and scamped work is a shameful and abominable thing, to which we will give no quarter.

As Rye, winter Tares, exhausted Sainfoin, and other crops are cleared off it will be well to give thought to the due provision of late Turnips and any successional green crops which may be required for the maintenance of full supply of such food. If Maize is not yet sown let no time be lost in getting in the seed, and do not forget the field *must* be closely watched during every minute of daylight, and the bird boys must be there on duty by 3 A.M., or the rooks will clear off every seed in a very short time. Lambs as usual have thriven exceedingly upon Sainfoin, the second growth of which may be turned to account either for seed or hay. Precisely the same plan is the best to follow where Clover seed is required, and everyone that can tries to have at least one field of Clover for seed. To mow a first crop of Clover, of which the second growth is intended for seed, involves such risk of failure that we never venture upon it, and those who did so last season had bitter cause to regret it, hundreds of acres of second crop Clover being spoilt by the rain after it was mown.

ERRORS in the Home Farm article published June 5th:—Last par but one, "During the haymaking our own farm bailiff" should have been "home farm bailiff." Last par, second sentence, "now at any rate" should be "mow at any rate." Last sentence, "If there are no hay basins" should be "If there are no hay barns."—E. L.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	1890.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass.
June.		Inches.	deg.	deg.	S.W.	deg.	deg.	deg.	deg.	In.	
Sunday	1	30.089	55.4	48.4	S.W.	55.7	65.2	40.8	117.2	36.9	—
Monday	2	29.950	59.7	52.9	S.W.	56.4	69.6	50.6	115.9	46.6	—
Tuesday	3	29.978	57.3	50.9	S.W.	56.9	63.8	50.2	98.1	45.7	0.010
Wednesday ...	4	29.835	56.3	51.4	S.E.	56.9	59.6	54.1	64.7	51.1	0.323
Thursday ...	5	29.993	57.9	54.9	S.E.	56.0	66.9	53.2	145.8	50.3	—
Friday	6	29.994	59.1	56.2	S.E.	56.1	67.9	53.9	102.7	52.9	—
Saturday	7	29.295	57.2	50.1	N.E.	55.8	65.7	46.0	118.4	42.3	—
		30.011	57.6	52.5		56.3	65.7	49.8	103.3	43.5	0.333

REMARKS.

- 1st.—Fine and generally bright.
 - 2nd.—Bright sunshine once or twice, but generally overcast and cool.
 - 3rd.—Overcast and cool in the morning, a little sunshine after 3 P.M.
 - 4th.—Wet from 7 A.M. to 11, and all the afternoon.
 - 5th.—Overcast, with frequent drizzle.
 - 6th.—Overcast morning; frequent sunshine in afternoon.
 - 7th.—Bright and fine.
- Generally fine but not hot, on the whole not unlike the previous one.—G. J. SIMONS.

CHISWICK CONFERENCES RECEIPTS.

1888 (Apple and Pear)	£21	1	0
1889 (Rose)	£5	5	6
„ (Vegetable)	12	2	4
„ (Chrysanthemum)... ..	16	12	0
			33 19 10
Total... ..	£55	0	10

CHISWICK CONFERENCES EXPENSES.

1888 (Apple and Pear)	£57	3	0
1889 (Rose)	£30	13	10
„ (Vegetable)	27	5	3
„ Chrysanthemum)	9	3	7
			67 2 8
Total expenses... ..	£124	5	8
Total receipts	55	0	10
			Loss £69 4 10

It will be seen that there was a falling off in the Drill Hall receipts last year in comparison with the year preceding of £8 9s., or nearly half, yet £33 more was spent in advertising. We regret most sincerely that there has not been a better return for the efforts that have been made to secure it. We believe everything has been done that could be done to induce the public to "patronise the shows," but the response at the best was meagre, and has dwindled to practically nothing. We hope it may be much better this year, and we were glad to observe a very good attendance at the Auricula Show.

In reference to the Conferences at Chiswick, which the report says were "successful in all else but the number of visitors," we find that the receipts at the three Conferences in 1889 were more than seven times greater than at all the Drill Hall meetings and shows put together during the same year. The Rose Conference cost the most, and brought in the least; the Chrysanthemum Conference cost the least, and brought in the most. The cost of the Drill Hall meetings last year was nearly twenty-four times greater than the receipts—namely cost, £217 0s. 10d., receipts £9 2s. The cost of the Chiswick Conferences was only a little more than twice the receipts—namely, cost £67 2s. 8d.; receipts, £33 19s. 10d. The largest amount taken on any one occasion at the Drill Hall did not equal the smallest amount taken at a Conference at Chiswick. We were not quite prepared for these facts, but, finding them, they cannot be ignored. Nothing approaching this information, which the courtesy of Mr. Morris has enabled us to present, could be extracted from the published revenue accounts of the Society, and we presume the Council desired the facts to be made known, or they would not have offered facilities for our ascertaining them for this purpose.

We do not expect, nor can any reasonable person do so, that a profit must be shown on each meeting, conference, or exhibition; but, on the contrary, there may be a reasonable loss on every one of them provided there is a corresponding accession of Fellows for providing the requisite income for the legitimate work of the Society in accordance with its charter; but gold can be bought too dearly. The accession which we are glad to recognise, and have tried to promote, is the result mainly of a lowering of the subscription and not of the Drill Hall meetings, though they have done something; and we suspect that Chiswick has been an attractive force in adding to the roll, and with the growing population of the district the gardens must increase in value materially.

Mr. Morris takes exception to a suggestion of Chiswick "being made to appear as costly as possible" by the officials. Deducting the receipts by sale of produce and other items Chiswick cost just over £1100 last year. In an official circular of the Society before us it is stated that "Chiswick is maintained at a cost of nearly £2000." Is not that making it appear as costly as possible? We are not finding fault. The motive is apparent and

good, and we must ask the Treasurer, who is a young Fellow of the Society, to believe that in what we have said over a period of more than thirty years, that our motives have been and remain equally good. We wish to see the Society strengthened. The Drill Hall is a source of weakness. It is a costly incongruity, and now this is apparent we hope that those who regard a city hall as essential, and desire to see the Royal Horticultural Society occupy a position worthy of its name and of the nation, will redouble their efforts in furtherance of Baron Schröder's great object—providing a suitable hall in a suitable position; and when the time comes we are strongly of opinion that plans will be devised for making it practically self-supporting.

Reverting to the accounts, we find that the disturbing entry "implements, &c., £122 19s. 7d." is not sufficiently expressive. Very little was expended on implements. Soil, manure, and various requisities are included but not indicated, and the omission was accidental. We wish to be perfectly fair. When we said no allusion was made to the labour of the Drill Hall in the revenue account we obviously meant as separated from the Chiswick conferences, and that is true.

Neither Mr. Morris nor Mr. Wilks has yet taken exception to our reference to the Society's *Journal*. Mr. Wilks is a laborious secretary, and may have been overworked, but he had an active co-editor, and the work ought to have been much more free from blemishes than it is. It should be improved in quality and reduced in bulk; for last year the cost was equal to 25 per cent. of the subscription income of the Society, or to half the net cost of Chiswick. Is that justifiable?

The best friends of the Royal Horticultural Society are not those who either applaud all that is done or remain silent when they cannot openly approve. During the past two years there has been such an unexampled immunity from free criticism, that public officials and their prompters appear to have forgotten the relative positions of themselves and the Press. Years ago Mr. Sabine in a short time so improved the position of the Royal Horticultural Society that a gold medal was presented to him, but being unchecked he, "with a rashness as fatal to a society's as to an individual's prosperity, indulged in lavish expenditure that nearly ended disastrously. Yet there was not the shadow of suspicion against his honesty and integrity." When public officials cannot meet public criticism on its merits, but either fall down before it or seek refuge in "personality," they do not exhibit their own strength as administrators so much as that of the medium in which their policy and methods are discussed.

MELONS UNFRUITFUL.

COMPLAINTS are often heard of the plants under house culture failing to set a good crop, reasons for this being hard to discover. Plenty of fertile flowers are produced, but unless they are fertilised almost simultaneously, or say within twenty-four hours of each other, only two or three will set properly, the rest turning yellow and shrivelling up. To make matters worse, while this small crop of fruit are attaining far too great dimensions, no other fruit can be persuaded to swell, and altogether disappointment prevails. When I make the assertion that Melons can be induced to crop in much the same manner as Cucumbers—that is to say, a long succession of fruit can be obtained from each plant, it does not always meet with acceptance, yet such is really the case with us, and has been for several years past. At the present time I could point to plants carrying fruit nearly fit to cut, more about a week later in ripening, and others in various stages of growth. In one house there are nine plants covering a roof area of 24 feet by 8 feet, on which there are now hanging seventy fruits in various stages of growth, some being 4 lbs. in weight, others somewhat smaller, or ranging say from good average Melons to those near the size of hen's eggs. So many have set at different times that nearly as many were cut off as are now hanging, or otherwise the fruits would perhaps have been too small to be serviceable. The varieties grown are Hero of Lockinge, Golden Gem, Sutton's Imperial, and Blenheim Orange, all well known good forms, but not particularly free setters.

It may be that the somewhat airy construction of our houses

has something to do with this satisfactory state of affairs, though I am not altogether prepared to admit that has much to do with the case. That a close moisture-laden atmosphere is unfavourable to the free setting of the fruit generally I readily concede, and for this reason would keep the house somewhat drier during the time the plants were in bloom, always supposing a good set could not be effected without it. That is not the secret of success in our case, nor in one other garden I am acquainted with where the Melons behave exactly as they do here. If we want them to behave similarly to Cucumbers we must treat them in some respects more liberally at the roots. The usual plan is to form small mounds of poor hard loam, no further additions being made to the same, and not enough water or liquid manure of any kind given to keep the roots alive and the plants in a clean active state. The wonder is not that the plants fail to set a good crop and collapse early, but that they do any good at all. Since the introduction of hot-water pipes for affording both top and bottom heat, the old custom of starting the Melons on a small hotbed has gradually been discontinued in many gardens, without in some cases taking into consideration that this was the principal food supply of the plants. With a considerable amount of leafage fully exposed to bright sunshine all through a long day there is certain to be a great amount of moisture evaporated, and this must be drawn from below, or it is not long before burning, red spider, and other evils are in the ascendant. If there is decaying heating material underneath, then ought the depth of loam or compost to be not less than 2 feet, this being kept up together in a square continuous heap either with thick turves or a loose 4½-inch brick wall. There is no necessity for or wisdom in mixing rich solid manure with the loam used, but if the latter is somewhat clayey and strong newly slaked lime may well be added at the rate of a 6-inch potful to two bushels of soil. Our loam is of a very poor quality, and we therefore add an 8-inch potful of bonemeal to every barrowload of it. This simple mixture appears to suit the Melons well, and further light surfacings of loam and bonemeal, the latter being more freely used this time, keeps the roots remarkably active near the surface.

That the quality as well as the amount of the loam given to Melons greatly affects the character of the crop I am well aware, but I am also equally certain that really good crops can be taken from plants rooting in almost any kind of compost. What they particularly need, and must have, is plenty of moisture at the roots. In order to be able to apply this freely and simply, nearly square mounds enclosed by either turf or brick walls—the only raised portion of the bed of soil being immediately about the collar of the plants. The latter precaution is advisable as a preventive of canker, perfect dryness about the stems very rarely, if ever, failing to preserve them from this dreaded evil. In our case the best of soil is enclosed on one side with a permanent wall, and on the other is kept together and kept in a moist state by a 4½-inch wall temporarily formed with loose bricks—this being far better than boards, as these twist and shrink badly. Not till the last of the fruits are ripening, or towards the end of the season, the same plants continuing to produce fruit as long as required, are they really “dried” at the roots. On the contrary they are watered twice a day in hot weather, and generally once daily when there is little sunshine. This, coupled with occasional top-dressing of loam and bonemeal, keeps the roots extremely active, or quite as much so as in the case of Cucumbers similarly treated, and the plants in a healthy vigorous condition. Naturally failures do sometimes occur, but they only go to prove the rule. Probably the flavour of the fruits would be slightly improved if less water and liquid manure was given just when they are ripening, but this we cannot afford to study, withholding water for a few days seriously checking the progress of successional fruits. Our fruits are seldom in a hurry to part from the stems. Most of them are cut, the ripening being completed on a shaded shelf in the same house, and they are kept and further improved in some cases in a cool dry room.

These remarks are perhaps offered somewhat too late to benefit many of my readers who might wish to modify their methods of Melon culture, but in numerous cases there is yet time to change the root treatment of the plants. Instead of leaving the small isolated mounds to gradually become hard, dry, and as impervious to water as a duck's back, not an active root after a few weeks being found in them, the wiser plan would be to gradually surround all with fresh loam or whatever compost may be preferred. This will soon form a continuous and nearly flat ridge of soil, and which can easily be kept moist. It is advisable, though, to enclose the sides with a brick wall, or otherwise the outer edges cannot be kept properly moistened, a free root action being thereby much checked. Keep the bricks moist, and the roots find their way up to them, many protruding through spaces between them, always supposing no mortar or cement has been used in the construction of the walls. Where good turves are plentiful, and which is not, unfortunately, very generally the case, the walls may be formed with

these. Quite recently I saw a grand lot of Melon plants growing in a bed of soil enclosed at the back by a wall, and at the front by thick turves of good clayey loam. The roots were showing through the latter much as Vine roots will protrude when piecemeal borders are similarly fronted with turves. Starvation treatment of Melons has too long been adopted, and it is quite time opposite methods of culture were adopted. I venture to think my friend Mr. Pettigrew, of Cardiff Castle, will readily endorse this sentiment, as it is an undeniable fact that he has been most successful with Melons grown on lines even more simple than we venture to adopt.—W. IGGULDEN.

PARISIAN HORTICULTURE.

(Continued from page 483.)

THE SALON—FLORAL PICTURES.

SOME concluding remarks in my last letter referred to the desirability of including representations of floral art in large exhibitions, and it may, therefore, be appropriate to say a few words about the great display of pictures in the Palais de l'Industrie, which has gained a world-wide fame in artistic circles as the “Salon.” It would not be suited to the pages of this Journal to enter upon a review of the general works of art there shown, for they cover a wide field, but what we are concerned with are the floral pictures. Even these I cannot pretend to criticise from a professional artistic point of view, but only as one who has a keen appreciation of the beautiful in the flower and plant world, and who has studied foliage and plants closely in all their relations to decorative uses. Perhaps it is an old complaint that artists too often fail to do justice to flowers from a specialist's standpoint; perhaps, too, there is some truth in the retort that the florists' ideal is frequently inartistic, heavy, formal, and “lumpy.” For instance, to take the flowers to which the latter term has been particularly applied, the show Dahlias, probably no artist would think of depicting a box of these as set up at the ordinary exhibitions. Even the glorious Rose would lose its charms if represented on canvas under such conditions. The Carnation and the Chrysanthemum would come into the same category. Still it is hard to understand why more beauty can be seen in a “starveling” than in a well-developed example, though strangely enough in exhibitions of pictures we more often see the former than the latter, and it produces an almost painful impression upon those familiar with the flowers to see a poor attenuated specimen figuring in picture.

In the Salon the flower pictures are not very abundant this year, and they chiefly deal with Chrysanthemums and Roses, some groups of wild or hardy flowers being observed, but, with few exceptions, they are unsatisfactory to specialists, either from want of fidelity or imperfect character, and the same remark applies to the majority of flower subjects usually seen at our own Royal Academy Exhibition. The fact is there are fewer successful flower painters than in other departments of art, and it is very surprising that it should be so. It is true we have some highly skilful floral draughtsmen, such as the Messrs. Fitch, Worthington Smith, and F. W. Burbidge, but representations of individual plants or flowers, where the strictest accuracy is required in the smallest details, is very different from a group or arrangement of flowers depicted in oils upon a canvas. It is surprising that more artists do not devote themselves to floral subjects just as some do to portrait, landscape, and animal painting. Not long since I heard of an artist in the West of London who states he has made over £1000 by paintings of Chrysanthemums alone, and that in a short time. Orchids, though so popular with the wealthy classes, and so well adapted for artistic effect, are seldom seen at these exhibitions, and I did not remark one such picture in the Salon of any consequence. But it will be said that these notes are wandering rather wide of the title, and so we will try to bring ourselves into order by turning to a few subjects of a more practical nature as observed in the Horticultural Exhibition.

ANTHURIUMS.

It was my good fortune to meet with several horticulturists of an extremely genial and enthusiastic character, and foremost amongst these, to whom I was privileged to be introduced, was M. A. de la Devansaye of the Château de Fresne, Maine et Loire, President of the Angers Horticultural Society, and a highly successful amateur cultivator. M. Devansaye has given special attention to Anthuriums for a number of years, and has raised some thousands of seedlings from crosses between all the best varieties obtainable of the *A. Schertzerianum* and allied types. From these he has rigorously selected only the best and most distinct, employing these again as parents, with the result that he has secured the most diversified and beautiful series of forms that I have ever seen. *Anthurium Schertzerianum* has been in cultivation

for about thirty years, and a plant from Messrs. Veitch & Sons was first certificated by the Royal Horticultural Society in 1863, and I am under the impression that M. Devansaye told me he has grown these plants from very shortly after their introduction. Many beautiful varieties have been imported or raised since then, but none proved so important as the white *A. Schertzerianum Williamsi* or album, which was introduced about 1874, and certificated a few years later (1878) by the Royal Horticultural Society under the name of album. Everyone who was concerned with the improvement of these plants at once perceived what a valuable variety this would prove for crossing with the scarlet forms, and it is probable that several endeavoured to secure crosses in this way about the same time. M. Devansaye was one of the successful raisers, at Ferrières also M. Bergmann obtained a cross of the same character with remarkable red-spotted spathes, which made its debut under the name of *A. Rothschildianum*, and was certificated in London on May 11th, 1880. I am not quite sure respecting the chronological order in which these crosses flowered, whether, for instance, M. Devansaye had his in flower before that at Ferrières, but he will no doubt be able to tell us something historically interesting about this, and it is certain that he has raised numbers showing every gradation between the white *Williamsi* on the one hand to the ordinary scarlet *Schertzerianum* on the other.

Considerable differences in size, form, and depth of colour in the spathes had been obtained previous to the crosses described, but since then quite a large and important group of variations has been formed exhibiting some remarkable combinations, and showing the scarlet colouring in spots, streaks, and clouding on a white ground, of an extremely diverse character. Comparatively few varieties have been selected by M. Devansaye for names, and amongst these the following may be noted here as the most distinct. *A. Schertzerianum Devansayanum* is one of the first, and the finest of these, and when shown in London by Sir Trevor Lawrence on April 13th, 1886, it was at once accorded a first-class certificate. The spathes are about 5 inches long when well grown, and heavily spotted with bright scarlet on a pure white ground, the back of the spathes being scarlet. The large size and clear definition of the spots renders this one of the most beautiful and effective of all the varieties. *Marie Thérèse* is another of the *Rothschildianum* type, with very large spathes of the well known variety *Wardi* shape, also beautifully and clearly spotted. *Madame de la Devansaye* is a distinct variety, the spathe of good shape, creamy white, relieved by bright red at the base of the spadix. *Souvenir de Versailles* has a number of fine red dots scattered over a white spathe. *Le Fresne* has a peculiarly twisted spathe heavily marked with deep red at the base of the spadix, white, spotted with red towards the tip. *Album maximum* has broad finely formed spathes, pure white, and constitutes a valuable addition to the white varieties. This made its appearance at the last Temple Show, when Messrs. Sander & Co. obtained a certificate for it. All these varieties have the same free flowering and vigorous habit of their parents, and arranged with Ferns the most useful, while many prefer the white and spotted forms for cutting to the brilliantly coloured varieties of the ordinary type. M. Devansaye has, however, performed good service, and has every reason to be satisfied with the results of his efforts.

ANNUALS FOR EXHIBITION.

There are a few annuals which are generally recognised as useful plants for culture in pots, and a few more that obtain a place as favourite border flowers, but they are rarely seen at exhibitions, and even in gardens they are usually but poorly represented considering their numbers and variety. Comparatively few persons in England have any idea of the wealth of floral beauty that well grown annuals possess. It is true that those who have visited the seed grounds of our large seedsmen, and have seen the plants in flower by tens of acres, know something about what can be accomplished, but they are comparatively few. In the London parks occasionally attempts have been made to prove the adaptability of some of the annuals for bedding, but the experiments have been too restricted. At Chiswick extensive trials have been made, and last year the results were very satisfactory, as the Floral Committee found when engaged in their selections. Many plants were there tried that are but little known generally and seldom seen in gardens, though possessing much to recommend them for this purpose. I called attention to these on page 128, August 15th, 1889, of this Journal, and I well remember how enthusiastic some veteran members of the Committee became about the plants, and what bunches were carried away to excite admiration at home. Efforts have also been made at times to provide and maintain public exhibitions of annuals, but they have languished from lack of attention or lack of energy on the part of the promoters.

At Paris the display of annuals was extraordinary and worthy

of fuller reference than was possible in a hurried note. MM. Vilmorin, Andrieux et Cie. were the premier exhibitors, and the *Prix d'Honneur*, a gold medal from the Minister of Agriculture, was a well deserved recognition of a remarkable exhibit. The plants were in pots and pans, some having been sown in them and thinned out, others had been transplanted from seed pans and boxes. Several points were noteworthy respecting them. First they were compact and sturdy, free from the weak, drawn appearance that too often distinguishes annuals grown in pots under glass. This indicated what was really the case—namely, they had grown near the glass, well exposed to the air, with no more heat than was absolutely essential at any period. The surprising way in which they endured a week's exposure in a draughty tent, with a high temperature, proved how well hardened and prepared they were for the ordeal. Secondly, the flowers were very abundant and extremely bright in colour, the last named quality probably resulting from the clearer atmosphere. The pots, &c., were arranged in circular or crescent-shaped beds, turfed at the margin, and they were plunged in soil or cocoa-nut fibre refuse, kept well moistened the whole time, and this assisted greatly in their preservation.

To enumerate all the plants thus displayed would take up too much space, but for brilliancy and variation of colour effect it would have been scarcely possible to surpass them. The following were especially notable:—Poppies, Silenes, *Rhodanthes*, *Tropæolums*, Sweet Peas, *Aquilegias*, *Centaureas*, *Chrysanthemums*, *Venidium calendulaceum*, *Collinsias*, *Collomia coccinea*, *Nycterinias*, *Calceolarias*, *Lasthenias*, *Gypsophilas*, *Petunias*, *Linums*, *Gilias*, *Nemophilas*, *Schizanthuses*, *Forget-me-nots*, *Kaulfussias*, *Stocks*, *Brachycome*, *Phlox Drummondii* in fine varieties, *Saponarias*, *Oxalis*, and *Mimulus*. These, suitably intermingled with graceful Grasses, like *Lagurus ovatus*, the *Airas*, and others, were both elegant and bright in no ordinary degree.—LEWIS CASTLE.

(To be continued.)

MULCHING AND WATERING FRUIT TREES.

THERE cannot be any possible doubt in the minds of gardeners and others engaged in the culture of fruit trees as to the health, vigour, and fruitfulness which these operations impart to the trees when judiciously carried out during their growing period. All trees of the Apricot, Peach, Nectarine, Cherry, and Plum, which are growing against walls or wooden fences, should have the surface soil slightly loosened with a fork for a distance of 3 or 4 feet, according to the size of the trees, from the main stem of each tree, and then mulch with 3 or 4 inches thick of half-decayed dung, and afterwards give sufficient water to each tree to moisten the soil about the roots—the space indicated—repeating the application once a week in dry weather. Thus treated the roots of the trees will be maintained in a uniformly moist and warm condition during the time they are swelling and maturing their crops and growths. Moreover, the repeated waterings will wash the virtues of the manure down to the roots of the trees, thereby improving the weight and quality of the crop, as well as the permanent condition of the trees themselves. Therefore, where there is a good supply of liquid manure at command, liberal quantities should be given to the mulched trees after they have had three or four supplies of clear water. If liquid manure be not obtainable remove the mulch, surface-dress with artificial manure to the thickness of an eighth of an inch, then replace the mulch, and water as advised above. I need hardly remark that strongly growing, healthy, and heavily cropped trees will require, and should have, more liberal and frequent supplies of water at the roots than would be necessary or good for trees growing under conditions the reverse of these. Vine and Peach borders under glass should have two or three such dressings of artificial manure, followed by a thin coating of horse-droppings during the time the trees are swelling and perfecting their crops. The water given to the roots of trees growing under glass should always be as warm, or a few degrees higher than the temperature of the house in which they are growing.

Where water can be pumped over beds of warm dung made up in the manure pound as it is had from the stables, and the soakings therefrom conveyed from the manure tanks to the Vine and Peach borders, and applied to the roots at a temperature of about 90° it is a great help to both gardener and crops, as the liquid manure is then much more active and beneficial in its effects on the crops than it would be when applied at a temperature of from 50° to 60°. The difference in the weight and quality of the crops resulting from trees treated in the manner indicated will repay twice over for the labour and expense involved, to say nothing of the concurrent building up of fruitful long-lived healthy trees. Where plants of the Melon, Cucumber, and Tomato are growing, as they ought to be, in narrow shallow borders frequent surface dressings

of guano, or any of the many other excellent patent manures advertised in the gardening papers every week, laid on before giving water and covered with a mulch will prove very beneficial to the plants in swelling and ripening their crops.

Apart from fruit trees, it goes without saying that in addition to increasing the weight and quality of the Pea, Dwarf and Runner Bean, and Broad Bean crops considerably by laying on a few inches thick of short or half-decayed dung on each side of the rows, their producing powers are also greatly extended during a spell of dry weather.—H. W. WARD, *Longford Castle*.

ROYAL HORTICULTURAL SOCIETY.

JUNE 10TH.

SCIENTIFIC COMMITTEE.—Present: Mr. Morris in the chair; Mr. Pascoe, Professor M. Ward, Mr. Sandford, Professor Church, Dr. Müller, Mr. McLachlan, and Rev. G. Henslow, Hon. Secretary.

Delphinium, Injured Foliage of.—Professor M. Ward reported upon the specimens sent to the last meeting. The damage appeared to have occurred in the bud, and was probably due to the low temperature of the night of May 31st. There was no fungus, and he had met with a similar case elsewhere. With regard to the lowness of temperature, it was remarked by Professor Church that at Twickenham 10 per cent. of Tomatoes were destroyed on that night, Mr. Morris observing that the thermometer on the grass at Kew registered 27° Fahr., or 5° of frost.

Cerambyx miles, L.—On a further examination of the caterpillars of boring beetles, brought to the last meeting by the Rev. G. Henslow from Malta, Mr. McLachlan noticed three specimens of the *Cerambyx*, and two of a *Lamellicorn*, or Stag-beetle, as well as one of the Wood-leopard moth, which had perforated the stem of a *Cassia* (though it was usually found in Pear trees) from Mr. Harry's garden at St. Julian's, Malta. Another remedy, in addition to that of "spearing," was suggested by Mr. Sandford—viz., to blow tobacco-smoke down the hole, when the beetle would attempt to escape, and could be easily caught. It is very important to observe where the beetles lay their eggs, and to catch them on the wing at the time. The name was wrongly reported in the account published in the *Gardeners' Chronicle* of the proceedings of the last meeting; and the name of the plant-bug should also have been inserted, *Lygus pabulinus, L.*

Icerya Purchasi (Maskell).—Mr. Morris exhibited some mounted specimens received from Mr. Lewis of Ealing of this so-called "cottony cushion" scale insect from Australia, prepared for the Kew museum; they included adult females with ovisacs and the ladybird, *Rodolia Iceryæ*, as well as remains of the *Icerya*, which had been destroyed by the *Rodolia*.

The Fog Report.—Mr. Morris called attention to the fact that the Royal Society had assigned £100, "on the recommendation of the Government Grant Committee, for an inquiry into the composition of London fog, with special regard to the constituents of fog injurious to plant life." An informal conversation followed with reference to chemical investigations to be undertaken at the laboratory of University College under the superintendence of Dr. Oliver.

Cynomorium coccineum.—Mr. Henslow exhibited specimens of this parasitic flowering plant from Malta. It was formerly supposed to grow only in "The Generals' Rock," a small island close to Gozo; but is now found at Mnaidra, on the south side of Malta, and in Sicily and Algiers. It is popularly known as *Fungus melitensis*, and formerly in great repute as a styptic remedy for hæmorrhage, &c. It is parasitic upon *Inula crithmoides*, a shrubby yellow-flowered Composite, which abounds on the rocks of Malta, giving the appearance of Furze bushes at a distance.

Lemon Seeds Germinating.—Mr. Henslow showed specimens of embryos which had begun to germinate while within the fruit.



ODONTOGLOSSUM RAMOSISSIMUM.

AMONGST the treasures in Mr. A. H. Smec's collection of Orchids at The Grange, Wallington, an excellent variety of the above named *Odontoglossum* flowered earlier in the season, and was exhibited at one of the Royal Horticultural Society's meetings. It is too seldom seen, for the plant possesses many attractions and is very distinct. The following description and particulars are given in Part I. of Messrs. J. Veitch & Sons' "Manual of Orchidaceous Plants," devoted to *Odontoglossums*:—

"*O. ramosissimum.*—Pseudo-bulbs oval-oblong, compressed, acapitous, bearing a single linear-lanceolate leaf 12-15 inches long. Scapes erect, branched, 2 feet high and upwards. Flowers 2 inches in diameter, white spotted with mauve-purple; sepals and

petals nearly equal, narrowly lanceolate, acuminate, with undulate margin and reflexed tips; lip elongated, deltoid, acuminate, reflexed; crest bilamellate, many-toothed in front. Column winged, white stained with mauve-purple.

"Var. *liliflorum*—Most robust in all its parts. Flowers larger, pale rose-purple with some white ocellated spots on the basal half of the sepals and petals, the margins of which are less undulate than in the type.

"First discovered by Linden, in 1843, 'in the thick forests in the neighbourhood of Merida, at the height of 6500 feet.' [In M. Godefroy's *Orchidophile* for May, 1883, M. Roehl states that he



FIG. 76.—ODONTOGLOSSUM RAMOSISSIMUM.

found this *Odontoglossum* on the central Cordillera, near Manizal (?), at 12,000-14,000 elevation, where the temperature at night sinks to a few degrees below the freezing point, while in the daytime it ascends to 11° and 12° C. (52°-54° F.)]. But not introduced till 1871, in which year Gustav Wallis sent plants to M. Linden's establishment at Ghent. It has always been a rare species in gardens, and has occasionally been confounded with *O. angustatum*, a Peruvian species discovered earlier in the century by Col. Hall; it is also a variable one as regards the colour and spotting of the flowers. The variety *liliflorum*, a very distinct and, at the same time, a very rare plant, was first introduced from New Granada many years ago by Messrs. Rollisson of Tooting. There is also a sub-variety called *xanthinum* in Sir Trevor Lawrence's collection at Burford Lodge, in which the white of the flower is replaced by canary-yellow. Although the individual flowers of *O. ramosissimum* are not striking, the *ensemble* of the inflorescence, which is usually produced in March and April, is very attractive."

HALL AND FRASER FUND.

It will be in the recollection of our readers that a fund was opened some time since for the benefit of the widows and families of Mr. Hall and Mr. Fraser, who by a most unfortunate accident were drowned in the Clyde in September last. The total amount collected was £460 17s. 6d., the expenses for printing appeals, postage, &c., £6 17s. 6d., thus leaving a balance of £454, which has been equally divided between the two families, and the amounts invested in Grand Trunk Railway of Canada 4 per cent. debenture stock. Mr. Wm. Thomson, jun., of Clovenfords, N.B., has consented to act as joint Trustee with Mrs. Fraser

for the amount invested for her benefit. The thanks of the Committee are due to Mr. Harry Veitch and Mr. W. H. Protheroe for the great pains they have taken in securing such a good and safe investment, and we trust the subscribers will be well satisfied with the results.—FRED. HORSMAN, *Hon. Sec.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE fifty-first anniversary festival of this Institution took place on Thursday evening, June 12th, at the "Albion," Aldersgate Street, when a large number of members from all parts of the United Kingdom sat down to dinner. Mr. Harry J. Veitch, the Treasurer, presided, and he was supported by Canon Cromwell, Dr. Robert Hogg, W. T. Thiselton Dyer, Esq., and the Rev. W. Wilks, about two hundred of the leading horticulturists in the kingdom being present, together with several from Belgium. One of the best representative gatherings yet held. The room was beautifully decorated with choice flowers and ferns, the tables being especially attractive. After dinner

The CHAIRMAN proposed the toasts of the Queen, the Prince and Princess of Wales, and the other members of the Royal Family. He alluded to the fact that Her Majesty had been a patron of the Institution since 1851, and dwelt upon the services rendered to their cause by His Royal Highness in being present at the Exhibition of the Royal Horticultural Society in the Temple, an event which he characterised as of great moment to gardeners.

The CHAIRMAN, on rising to propose the toast of the evening, was received with loud cheers. He said:—The toast which I now beg to offer for your acceptance is that of "Continued Success and Prosperity of the Gardeners' Royal Benevolent Institution, now in its fifty-first year." (Cheers). In the first place I would beg you not to expect from me any of that grand oratory which it has been our privilege and pleasure to hear from those who have occupied the position I have the honour to hold to-night; but if oratory fails me, I yield to none of my predecessors in the desire to see the Gardeners' Royal Benevolent Institution progress and do well. (Cheers). And from that point of view I beg you will bear with me for a few moments. (Hear, hear). Our Institution, as some of you are aware, was founded in 1839, and we to-night, therefore, are celebrating its fifty-first anniversary. (Cheers). Those to whom is due the honour of founding this Institution have since passed away, but the names of Henderson, Noble, Lane, Dickson, Osborn, and Webber must ever remain green in the memories of all who have this Institution at heart. (Cheers). Nor could they have left behind them a more honourable memorial. (Cheers). But although those worthies are no longer with us, I am sure you will join with me in acknowledging how glad we are to see still amongst us one who, if not one of the actual founders, has been one of the greatest friends of the Institution from the time of its founding, and I am sure you will join with me in offering our warmest congratulations to our worthy friend Mr. John Lee, rightly called the father of the Institution, and expressing the hope that he may be spared to be with us on many similar future occasions. (Cheers). Our Institution was founded in 1839, and we had a very small beginning. In 1840 our income was £123, on the strength of which the first pensioner was elected. In 1841—I am not going through all the years—we had advanced so far that we were able to elect the second pensioner, and in 1842 we elected two more. (Hear, hear). After that matters seem to have gone rather more rapidly, until at present we have 154 pensioners on the list, these pensioners being drawn from all parts of the United Kingdom. Our oldest pensioner at the present time is 102 years of age. (Laughter and cheers). He subscribed eighteen guineas to the Institution, and up to the present time he has received £490. (Laughter). Not a very bad investment I think you will say. (Hear, hear). Since the commencement of the Institution we have had on the books 547 pensioners, expending an amount in pensions and office expenses of about £53,000. (Hear, hear). Nor is that all. When first the Institution was founded the pensions for men were fixed at £16, and for women £12; but through the liberality of the supporters we were enabled a few years since to increase the pensions, those of the men from £16 to £20, and the women from £12 to £16. (Cheers). Nor is that all. In the year of Her Majesty's Jubilee, through your liberality, we were enabled to make a present to every pensioner and every non-successful candidate of the sum of £5, that they might have their share in the enjoyments of the Jubilee year. (Hear, hear). And now comes the question, "For whom are the benefits of the Institution intended?" and with your permission I will read an extract which I find in one of the leading gardening papers recently—the *Gardeners' Chronicle* for May 31st, 1890:—"At present the general public hardly recognise what horticulture really is. They look upon it too much in the light of a mere recreation and a gratification of the senses, but it is far more than that. Intellectually it ranks as an applied science, demanding for its study the highest powers of the mind. Economically it is of the greatest importance as an industry, in which vast capital is sunk, providing occupation for an army of workers, enlarging and improving the food supplies of the nation, whilst nothing is more certain than that the agriculturists of the future must study the methods and practices of their horticultural brethren if they wish to turn the land they occupy to the best advantage." Gentlemen, it is for the unfortunate amongst that army of workers that we are asking your help to-night, and I don't think I can more strongly recommend them to you. As regards the candidates, they are not admitted indiscriminately. They have to pass the

scrutiny of the Committee, headed by our honoured friend, Mr. John Lee, and they have to produce testimonials of good conduct showing that they have conducted themselves as those should do who apply for a pension such as we offer. (Hear, hear). Now it is argued by some that many of these poor people have brought distress upon themselves. I have been told it often that if only people in the prime of life took the necessary precautions they would be able to save sufficient for the old or rainy day as it is called. Gentlemen, there are some no doubt who do bring trouble on themselves, but I venture to ask you to believe that they are a very small minority. (Hear, hear). There are some who are in want who have probably only done what a great many of us have done—endeavoured to increase what little money they may have had by what they believed to be a fair and sound speculation. They have not always succeeded, and I appeal to every gentleman here to-night whether he has always succeeded. (Laughter). We are not in the position in which they are, and I ask you to remember those who have been less fortunate than ourselves. The life and occupation of a gardener is in many senses a very precarious one. When bad times set in, I appeal to you, is it not the gardener who is first made to feel it? Is not the gardener frequently called upon to accept a lower rate of wages, or to make room for a cheaper man as he is called, and falsely so called. (Hear, hear). I think you will agree with me that that is so. (Hear, hear). If you put the wages of a gardener at £70 a year, that I believe is a high average. I am very thankful to say that there are exceptional cases, but taking the average at £70, I ask you if you would like to keep yourselves respectably, pay a premium very likely for learning your business, and then keep a family out of £70 a year, and then perhaps to be out of a situation for weeks and months. The case of the gardener is a hard case in many instances, and on that ground I appeal to your liberality to help those who are obliged to come to us in their old age. I know of no more deserving set of servants than the gardeners of this country, men who are obliged to be scientific as well as practical, and I earnestly ask you to be liberal to-night in the help you give to them. (Hear, hear). That gardeners are anxious to help themselves I beg you to take my word. In my position as Chairman I have received a great many letters from gardeners in all parts of the country. Among them were the following:—"I enclose P.O., value £2 15s., on behalf of the Gardeners' Royal Benevolent Institution, and I am sorry that it is not in my power to help more, myself having a family of ten children." (Cheers). Another is—"I enclose P.O. for £1 3s. 6d. I should very much like to have been in a position to subscribe more, but I have had my wife under the doctor's hands for just upon nine years and myself for nearly two years on and off." (Cheers). These are some of the persons we ask you to assist. (Hear, hear). With regard to the cost of management it would be well if I gave you a few figures. Our principal expenses are connected with the office and two clerks, one of them our most jolly Roger Cutler, and the youth with him. (Cheers). There are also incidental expenses such as postage, because our constituency is all over the country. But I should like to give you some figures to show you the progress of the Institution, and the decrease in the expenses of management. In 1850 we paid in pensions £492, in 1860 £733, in 1870 £787, in 1880 £1074, in 1889 £2348. (Cheers). The annual subscriptions in 1850 were £542; last year they were £1328. (Cheers). The donations in 1850 were £206; last year they were £3400. (Cheers). The invested capital in 1850 was £2250, and last year £23,000. The expenses of management were, in 1850, 20 per cent., in 1860 21 per cent., in 1880 18 per cent.; last year they were 12 per cent. (Cheers). Again I ask your liberality on behalf of an Institution so beautifully managed. I am sorry to say that the fund, however large, is not sufficient. At the last election we were able to elect only eight candidates by voting, and sixteen are still waiting until we can afford to have another election, and there are others who are waiting to become candidates, and therefore without a liberal response to-night there are candidates who will probably have to wait until another year, and you can easily understand what hope deferred means when there is nothing before them except the workhouse. (Hear, hear). I beg you to think of those poor people who are waiting and endeavouring to make their remaining years in this world happy. I leave the matter in your hands. (Loud cheers).

Mr. N. N. SHERWOOD, one of the Trustees, in responding to the toast, said he had to thank the Chairman for the excellent way in which he had expounded the merits of this excellent Society. There was no doubt about it that during the fifty-one years that the Institution had existed it had made most rapid bounds. (Hear). He thought they would consider it a great deal when they came to consider that at the present time they had funded £23,000, and over 1200 yearly subscribers. (Hear). But still they wanted more. The Society had without doubt one of the most excellent Secretaries it was possible to have. (Cheers). Mr. Cutler's exertions had brought the Society to its present perfection. In conclusion, he thanked those present for attending, and for the donations they have given on behalf of the gardeners whose hearts and homes they would make happy by their liberality. (Cheers).

Mr. W. T. THISLETON DYER, Director of the Royal Gardens, Kew, proposed the health of the Chairman, a toast which he said would need but very few words from him. (Cheers). Before asking them to drink it he would like to say a few words. That was the first time he had had the honour of being present at the dinner of the Gardeners' Royal Benevolent Institution. There was not one, perhaps, more than himself who felt for reasons they could easily imagine, that horticulture was an arduous task. He believed it was the very first thing our progenitors devoted themselves to, and they would call to mind that succe_{ss}

attended it then as now by the sweat of their brow. (Hear, hear). He always felt how much they owed to gardeners, and he was glad to express his admiration for endeavouring to bring back the Eden they had lost. (Hear, hear.) He had the honour to be associated with a very large number of English gardeners, and he was bound to say that the more he knew of them the more he liked them, and the more he admired the qualities of self-reliance, intelligence and skill which the English gardeners exhibited. (Cheers). When he was told that a Society like that might perhaps in some insidious way warp and spoil the fibre and self-reliance of those men he frankly did not believe it. (Hear, hear). In all classes of the community misfortune happened, and he understood it was their object to rescue those who had fallen on bad times through no fault of their own (hear, hear) and to reclaim them from the extremity of pauperism which was a horror to the English mind. (Cheers). Now as to the toast, he said they all admired the work done by the Chairman. (Hear, hear). He remembered when the Royal Horticultural Society was at its last gasp, when it seemed past human aid to reanimate such a wreck, he believed it was mainly by the administrative energy of their Chairman that the wreck was launched into its present smooth water. It seemed to him that Mr. Veitch claimed their affection, and he asked them to drink the health of their excellent Chairman with enthusiasm. (Loud cheers).

The CHAIRMAN, in reply, said he most cordially thanked them for the manner in which the toast had been proposed and received. He assured them that that was one of the most happy nights of his life, and he deeply thanked them for supporting him. What he had been able to do he had done with the greatest possible amount of pleasure. One of his earliest recollections was of a conversation between his father and old Mr. Henderson about the Institution, and he supposed he had got the Institution into his very constitution, and he hoped it might remain there as long as he lived. (Cheers). One of the experiences of chairmen was that they received some strange correspondence. He would like to read two letters which he had received as showing the different views taken. One was as follows:—"I have pleasure in owning receipt of your letter of the 12th inst., and fully sympathise with the Gardeners' Institution. The subject, however, seems so large that when I consider that fifty-one years has only resulted in 154 old men out of all the gardeners of the United Kingdom being pensioned it seems beyond my grasp." The writer forgot, said the Chairman, all those who had died during the past fifty-one years. The letter continued:—"I also see no reason why coachmen, policemen, porters, and clergymen should not be pensioned as much as gardeners if it could only be managed. Only a few months ago a clergyman wrote to me on the subject of the pensioning of clergymen. I quite agreed with him as to the advantage of his proposal, but pointed out that the other classes were at least equally deserving, and I was not able to subscribe to them all. I shall always try to do what little good I can in subscriptions on account of my own village, but must leave the dwellers in London and other large towns to attend to the royal institutions." (Laughter). Of course, said the Chairman, he replied to the best of his ability, but he was unable to "draw" the writer. (Laughter). On the other hand, he had received the following letter:—"Gardens and Gardeners contribute so much to my happiness that I enclose a cheque for ten guineas with great pleasure." (Cheers). Well, such letters as the first did not hurt them; they were very thankful for all they got, and the rest they forgot as soon as they possibly could. (Hear). In conclusion, he begged to thank the Stewards on that occasion, to whom he was deeply grateful for their support. One word to practical gardeners. He should like to see more of them subscribers to the Institution. (Hear, hear). He hoped they would attend in large numbers next year to hear Mr. Edmund Yates, who had promised to preside. (Cheers).

Mr. SHIRLEY HIBBERD proposed the toast of the President and Vice-President of the Institution. He said gardening was an anxious occupation. It had its dark side, because although they had been for years discussing the subject of fruit culture they looked round on their Apple trees, and saw nothing on them—(laughter)—and even the celebrated Paradise Apple had become an Apple of discord. (Laughter). But Nature had her compensations, because although they had nothing on their trees Nature had been kind enough to give them a magnificent exhibition this year of Buttercups and Daisies. (Laughter and hear, hear). Turning to the subject of the toast he said the Duke of Westminster, who was the President, was a good promoter of horticulture, and had promised £1000 towards the Horticultural Hall. (Cheers). Mr. Herbert J. Adams was the Vice-President, and a patron and friend of horticulture. (Hear). He considered that this country was greatly blessed in the fact that our aristocracy took an interest in the affairs of the people. (Hear). There was nothing too small for their attention, and scarcely anything too large for their ability—(hear)—and it was well for the people to thoroughly employ them, as that was the best preventive of absenteeism. (Laughter and cheers).

Mr. H. J. ADAMS in response expressed his great pleasure in doing what he could to promote the interests of the Institution. (Cheers).

The CHAIRMAN next proposed the health of Mr. Cutler, who, he said, was the best Secretary of any Institution in London, and to whom that Institution was greatly indebted.

Mr. CUTLER, who was received with loud and prolonged cheering, said he attributed the progress of the Institution to two things—the goodness of their cause—(hear, hear)—the good management of the

Committee—(hear, hear)—and some people said there was a third reason—the incomparable cheek of the Secretary. (Hear, and laughter). He had much pleasure in announcing that the subscriptions that night amounted to just upon £3000. (Loud cheers). Subscriptions had been received from the highest to the lowest in the land. (Hear, hear). The Chairman's list amounted to £1220. (Cheers). The gardeners alone had contributed no less than £770. (Cheers). Mr. Munro had got from amongst his friends in Covent Garden £120—(cheers)—and Mr. Robinson had collected 100 guineas. (Cheers). He himself had been connected with the Institution for forty-nine years, and he hoped he might be spared till next January, when he trusted they would elect him again. (Cheers).

The CHAIRMAN proposed the toast of "Our Provincial and Foreign Friends," coupling with it the names of Mr. G. A. Dickson of Chester, as representing their friends throughout the country; M. De Graaff of Leiden, Holland, "the King of Amaryllis growers;" and M. D'Haene of Ghent, "one of the most enterprising of all Belgian nurserymen." (Cheers).

Mr. DICKSON in reply said an institution of that sort could not possibly go back because it had the good will of everyone, both small and great, and he thought that in the splendid subscriptions of that evening they had still further advanced. He took the opportunity of suggesting that rule 15 should be wiped out, giving an instance where it worked harshly in the case of a widow. He said it did not hold good that because a person was in receipt of parish relief that person was unfitted for the relief afforded by the Institution.

M. DE GRAAFF expressed his deep sympathy with the objects of the Institution, and wished them all success.

M. D'HAENE, who responded in French, said he had long ago heard of the Institution, but he had never assisted at one of its meetings before. He thought if the Governments of the Continent, who were troubling themselves so much about economic and social questions, were to adopt the rules of this well-managed Institution they would be able to settle matters most satisfactorily. (Hear, hear).

Mr. PARKINSON proposed the Committee of Management and Stewards of the evening.

Mr. MUNRO and Mr. WEBBER responded, the latter gentleman explaining, in reply to Mr. Dickson, that any person in receipt of parish relief forfeited all other moneys to the parish, and therefore the rule could not be altered.

The CHAIRMAN then gave the last toast of the evening—"To our next merry meeting."

This and all the other toasts were drunk with the greatest enthusiasm, and a delightful evening was made still more enjoyable by the singing of Miss Ethel Winn, Miss Mary Belval (Mr. Cutler's daughter), Mr. John Bartlett, and Mr. Robert Hilton. Mr. F. R. Kinke accompanied, and Mr. F. V. Goddard made an excellent toastmaster. The two lady artistes were each presented by the Chairman with an interesting souvenir in the shape of a magnificent gold bracelet; and Mrs. H. J. Veitch contributed ten guineas towards the splendid dessert that adorned the table.

NOTES ON A TRIP TO JERSEY.

WE have had placed at our disposal a very interesting paper, which was read at a meeting of the Bournemouth Gardeners' Improvement Association by Mr. J. B. Stevenson. After describing the scenery of the Island the following account is given of Mr. Bashford's establishment.

WE drove from St. Hellics to the parish of St. Clements to view the largest erection of glass for the cultivation of Grapes and Tomatoes, &c., in this or any other country. Mr. Bashford conducted us over his place. Owing to want of time I can only mention a few of the houses we were shown through. The first was a span-roofed one 350 feet long by 45 feet wide. This was planted with Vines two years old, which were making a strong growth. Tomatoes were planted in rows about 3 feet apart; each plant had a stake 8 or 9 feet high, and two and three shoots (not more) tied close to the stake, and a grand sight it made. The plants were about 6 feet high, and wonderfully close jointed, and with grand fruit. I may here state that this and all other houses of Tomatoes had contained Potatoes. These are planted two rows together 8 inches apart, the Tomatoes being planted afterwards. The young Vines up near the glass were making fine growth, and two good paying crops are taken from the houses in one season. The next was the early Hamburgh house 600 feet long (a lean-to). Two tons of Grapes were cut from this in April and May. We were then shown a Melon house (span-roofed) 120 feet long, carrying the second crop of fruit. It was a fine netted variety, which Mr. Bashford says sells well. The Gros Colman house is span-roofed, about 900 feet long by 33 feet wide, and such a house of Grapes was worth going the distance itself to see. The Vines were in grand foliage with bunches 4 to 6 lbs. each and berries like Plums, colouring well. To give an idea of the size of the berries I put a half-crown in front of several, and I could see the berry all round it, and twelve berries selected from several bunches weighed

1 lb. The proprietor informed me that in 1888 he cut eleven tons from that house, which sold at an average of 4s. per lb. The next was a Tomato house 800 feet by 45 feet with about 4000 plants, a sight not to be forgotten. Another Gros Colman house (a lean-to) facing north is 200 feet long with a grand crop of very late fruit. We were shown another span-roofed house 500 feet by 45 feet, and then came the finest sight of Muscat of Alexandria I have ever seen, a span-roofed house 800 feet by 33 feet with splendid bunches of Grapes. This was the first year fruited. Mr. Bashford told me that the first year the Vines were planted he cut sixteen tons of Tomatoes from that house as well as a crop of early Potatoes.

Having mentioned some of the principal houses which we passed through, I will give a few particulars of the place as furnished by Mr. Bashford. The total length of glass houses is about $2\frac{3}{4}$ miles, with 15 miles of piping, but since my visit he has put up another house 1100 feet long. There were twenty-one boilers of various makes; one of Root's patent heats 10,000 feet of piping. Mr. Bashford prefers the horizontal tubular boilers for economy and work. Pipes and hose for watering is attached to all the houses, which is supplied from a water-tower 90 feet high, and pumped up from a stream which runs through the grounds by a small steam engine, and when all houses are in full "swing" about 600 tons of water is used per day. The principal Grapes grown are Black Hamburgh, Muscat of Alexandria, and Gros Colman. Mr. Bashford informed me that some time ago he was talking to a fruit salesman, who showed him a sample of Grapes he had arranged to purchase at 3s. 6d. per lb. Mr. Bashford offered to send him some with berries as large again; the salesman offered to give him 5s. per lb. for all he could send, and the salesman was astonished when he told him he would send him 6 tons as a first consignment. Mr. Bashford has the soil necessary for growing good Grapes on the spot. Commencing in August he sends off 2 tons of Grapes daily, and 80 tons of Tomatoes yearly.

His best Tomato is a cross between Trophy and Conqueror. I inquired if the plants were troubled with the Tomato disease. He said "No," and certainly I saw none. Owing to most of his Tomatoes being some distance from the glass he gets the spot or mildew on the foliage, but that he soon cures by having pots with a small lump of bot lime in each, which is sprinkled now and again with flowers of sulphur and carried round and amongst the plants. His Grapes and Tomatoes are mostly packed in baskets 18 inches by 12, with strong bow bands. A little hay is put in the bottom, and paper on the sides for Grapes, and the same for Tomatoes, with a sheet of paper between the layers. In loading in ship a layer of baskets is put in and then a layer of wood hurdles on the top of the bundles, and so on. At the time of my visit thirty-five men and boys were employed, but at Grape thinning time seventy are engaged. I saw nothing grown outdoors requiring special mention, only Potatoes for seed for planting in the houses. Everything was in good order, and showed me that the place was governed by a master hand.

RAISING VINES.

The process of raising young Vines in Jersey is far different from what it is in England. The common practice is to raise the young Vines from cuttings, and with one exception I have not seen them raised in any other way. Mr. Bashford, who is by far the largest Grape grower either in Jersey or England, raises his Vines from eyes in the following way:—Early in the year numbers of large pots are well drained and filled to within 4 or 5 inches of the rim with good sound loam, then the eyes are laid on the soil closely, and 2 or 3 inches of soil is sifted over them, well pressed down, and well watered if the weather be dry. The pots are placed out of doors, and during the summer are well looked after in regard to watering, &c. By the end of the summer they have made growths of from 18 to 30 inches, and the pots are full of roots. In the spring of the following year they are turned out of the pots, the roots disentangled, and they are then planted out in the ground and cut hard back. By the end of the summer they make good canes, and are ready for planting in the houses, and they do quite as well as Vines that are grown in pots under glass in England. In raising young Vines from cuttings a different method is pursued. In the month of February a piece of ground is trenched 2 feet deep, and well-ripened cuttings with three or four eyes are inserted in rows 2 feet apart. The first year they sometimes make growths of 3 to 4 feet long. At the end of the first year they are cut hard back, and the following year they are trained on wires or stakes, and make good canes ready for planting in the houses. All sorts are grown this way. No exception is made, not even with Muscat of Alexandria. The price they sell at is from 18s. to 24s. per dozen.

MANURES FOR VINES.

Chemical manures are not much used in Jersey for Vines, for the simple reason that on the best deep rich soil they are not required. Many growers simply give the border a good mulching with farmyard manure or seaweed each year, with a little lime every few years; this keeps the Vines well supplied with all that is needed to keep them in health and vigour. Many Grape growers are also farmers, and have always a good supply of liquid manure from the cowsheds, &c. This is one of the best manures for Vines; they use it freely when the fruit is swelling, and this accounts for the heavy crop of Grapes that is taken from a given space of glass. It is really surprising what Vines will do in Jersey if they are well fed at the roots at the time when the greatest strain is on them. But many growers are not so well circumstanced as the farmers either for soil or manure, so they resort to chemical manures. Mr. Bashford makes great use of the following, with good results:—1 cwt. nitrate of potash to $\frac{1}{2}$ cwt. of superphosphate, at the rate of 1 lb. to the square yard of border during the season, but given at two or three different times. Another grower of high repute gives his Vines two or three light dressings of fine bonedust and sulphate of ammonia, at the rate of 4 cwt. of the former to 1 cwt. of the latter. The following mixture is also used by others:—10 cwt. dissolved bones, 4 cwt. nitrate of potash, and 5 cwt. sulphate of lime, giving 1 lb. to the square yard two or three times during the growing season. Another very good manure is sometimes used on ground that is poor in potash, with good results is kainit, given at the rate of 1 lb. to the square yard every third or fourth week, and well watered in. This is only used one season in four.

TOMATOES.

The bulk of the Tomato crop is grown in unheated houses; very few are grown out of doors, and very few are grown for early in the year—say from February to April—on account of the great cost for fuel. It does not pay to grow the plants all through the winter, as they do not set well during the short days from November to March, and I find that plants that have been grown with fire heat all through the winter do not crop so well as plants raised from seed early in the year. I do not attempt to force the plants hard under fire heat, even when sown in February, as I find it better to grow the plants on steadily, so as to get them into bloom by the first week in March. At that time they set their fruit freely if well cared for, and a little fire heat is given to keep the houses up to 60° at night. I may here say that we often have very hot days in March, the thermometer going up to 90° and 100° with all air on; but the nights are cool, therefore a little fire heat is useful at night. We pot all our plants from the seed pans into 3½ inch pots, and keep them near the glass. By so doing we have fine strong plants that come quickly into bloom and fruit. By the end of April all fire heat is turned off and air given night and day. Good strong soil is far better than sandy soil for the Tomato. It is also a decided advantage to give them fresh soil every year, but here in Jersey it is not always necessary to take the soil out of the houses to do so, for unless manure is dug deeply into the ground the Tomato seldom roots more than 12 inches deep; therefore by trenching 2 feet deep one year, and 3 the next, the plants always get a given amount of fresh soil, and do well if otherwise properly treated. On the strong soil no manure is put into the ground before planting, but simply parings from the roads, &c., feeding the plants when in full bearing with liquid manure from the cowsheds, &c. On the sand it is necessary to apply stable manure, and mulch the plants as well, to keep them in bearing from May to December, but on the strong soil they are in bearing until February with liquid manure only. Before giving the prices that made during the past season, I may say that it pays far better to have strong plants with a heavy crop of fruit that begin to ripen in May than it does to have plants with a light crop earlier in the year that have cost much in fuel, and want renewing in July. Prices for 1889:—May, 1s. 6d. per lb.; June 10th, 1s. 4d.; June 15th, 1s. 2d.; June 29th, 10d.; July, 8d. to 10d.; August, 5d. to 6d.; September, 5d. to 6d.; October, 6d. to 7d.; November, 6d. to 8d.; December, 8d.

These are the prices realised in the various English markets during the past season, but 1d. per lb. must be deducted for freight and commission.

JERSEY SPECIALTIES.

We left Mr. Bashford highly delighted with our visit, and started for a circular drive round the island. Everything looked at its best; the roads were in splendid condition, but very narrow, and at this time everyone seemed busy cutting their hedges and trimming the sides of the roads. It is a law on the island that all hedges along the public roads must be clipped twice a year and a clear headway made for traffic. Twice a year officials go round all roads with a pole or rod of

certain length, which must not touch anything in the shape of a blade of grass, twig, or branch of a tree from the centre of the road. Owing to this system some beautiful avenues and shady lanes are kept, the roads being narrow, and the hedges cut straight up to a certain height, and allowed to grow over till they nearly meet in the centre of the road. I noticed that where the land was cultivated all trees are cut well in, and do not hang over much. Our next halting place was Prince's Tower, hidden by trees and shrubs, and on balconies, &c., were arranged numbers of Pelargoniums of various colours, which gave the place a bright and cheerful appearance, and just the place to enjoy a light refreshment on a hot day. Continuing our journey we were struck with the quantity of tall Jersey Cabbages from 3 to 6 feet high. They were planted in large breadths, and in any out of the way places, and even close by the hedges. They do not form a heart at the top. They are sown in August, and planted out during October, and begin growing at once. They are much used by the farmers for feeding pigs; in fact many pigs are fed with nothing else. As the plants grow the leaves are pulled off, only the small leaves at the top being left at each gathering, and in a few days fresh leaves are grown and keep up a supply all the year round, the plants lasting quite a year. On good ground they often grow 10 to 15 feet high, and on one occasion when a prize was offered for the longest Cabbage stalk, that which won the prize was over 20 feet long. The leaves are also used to make soup with. The Cabbage soup is a great dish in Jersey, and made in the same way as soup in England, with this difference, that whereas in England beef is put into the soup, in Jersey they put in Cabbage leaves, and the Frenchmen and Jerseymen enjoy it thoroughly after a hard day's work. Also the stems make good walking sticks, and many people gain a living by making walking sticks, and few people come to Jersey without taking one away. They are also used for Bean sticks, fishing rods, and other purposes, and very good picture frames can be made with them.

There is only one class of cattle on the island, the Jerseys, and it was rather amusing to see the natives leading them about with a rope. They are not allowed to roam about the field at will, but are tethered and have to clear all up before being shifted. All cattle landed on the island for food for man are slaughtered within two or three days in shambles built for the purpose close to the quays. Our next halt was at Bouley Bay Hotel; here there is a fine view across the bay, and this reminded us of Bournemouth, as there is a quantity of Pine trees about. I also saw a fine Fuchsia hedge here about 10 feet high. After a short drive my friend and myself left the carriage, which goes on with the rest of our party, and we agree to meet at Grove de Lecq for dinner. After a walk of about a mile we land at La Maison de Cidre. Here are some good vineries all unheated. There was a fine house of Black Hamburgh, just about ripe, and splendid examples of Gros Colman and Lady Downe's Grapes. This place belongs to a farmer who has taken to Grape growing in addition to his farming, he has also a good orchard of cider Apple trees and a good butt or two of cider. I will now read to you what my friend has to say about these vineries. "As you inquire about these Vines I think as I have had a little to do with them during the last three years I had better give you their history, as it will give you another view of Jersey Grape growing, as in this case the Vines were planted one year before the vinery was built, it being decided what size the vinery should be and also the shape span-roofed. The ground was marked out 90 feet by 21 feet, the ground being very rich and strong, in fact some of the best in Jersey. It was simply well trenched 3 feet deep, and the young Vines two years old from cuttings were planted the first week in March: each Vine was staked and the side growths pinched at the first leaf, but beyond this they had no attention. The following winter the vinery was built over the Vines and the canes cut hard back. The first year the vinery was up it was made good use of for Tomatoes, and the crop realised £50, the Vines making fine strong canes up to the top of the house. At pruning time they were left 4 feet long, and the next year more attention was given to the Vines, but still a few Tomatoes were grown and realised £15, and each Vine was allowed to carry one bunch of Grapes, that made £8. This brings us to the time when you saw them, carrying from 600 to 700 lbs. of Grapes, that made £65. The fruit finished well and the berries being as large and as good in colour and flavour as Gros Colman generally is in England, and far better than it is often seen, but owing to there being no fire heat the crop had to be sold at a time when Grapes were very cheap. If the house had been heated the crop would have made 25 per cent. more in a few weeks, but as it is the vinery has only been built three years, and with the exception of a little mulching and a few waterings with liquid manure nothing has been put into the borders, yet it realised £138. The house is planted with sixty Vines,

thirty on each side." It was at this place I was shown a large house of Grapes that was thinned by one man in two and a quarter days.

(To be continued.)



EVENTS OF THE WEEK.—The Royal Horticultural Society's Fruit, Floral, and Orchid Committees will meet in the Drill Hall, James Street, Westminster, at 12 noon, on Tuesday, June 24th. On Wednesday, June 25th, the Richmond (Surrey) Horticultural Society's summer Show will take place as usual in the Old Deer Park, and an extensive display is expected. As announced in another paragraph, a Strawberry Conference will be held on Friday, June 27th, by the British Fruit Growers' Association, in the Royal Aquarium, on the occasion of the Rose Show and the National Pink Society's Show on the same day.

— BRITISH FRUIT GROWERS' ASSOCIATION—STRAWBERRY CONFERENCE.—The following papers will be read at the Strawberry Conference to be held by the British Fruit Growers' Association in the library at the Royal Aquarium, Westminster, on Friday, June 27th next at 5 P.M., T. Francis Rivers, Esq., in the chair:—"The Origin of the Cultivated Strawberry," by Mr. Shirley Hibberd; "The Culture of Garden Strawberries," by Mr. John Wright; "The Culture of Strawberries for Market," by Mr. G. Bunyard; and "Seedling Strawberries," by Mr. Thomas Laxton. Exhibits of Strawberries are invited, and notice of the space required should be sent as early as possible to the Hon. Sec., Mr. Lewis Castle, Hotham House, Merton, Surrey.

— THE WEATHER IN THE SOUTH has not been remarkable for its warmth during the past week, and rain has fallen heavily on several days. Strawberries now need more sun, and brighter weather generally would be advantageous.

— HORTICULTURAL CLUB.—The usual monthly dinner and conversazione took place at the rooms of the Club, Hotel Windsor, Victoria Street, Westminster. Mr. John Lee occupied the chair; there were also present the Rev. W. Wilks, E. Handley, and Messrs. Girdlestone, Bunyard, H. Pearson, Walker, Rivers, Barron, and Turner. The subject for discussion was "Early Strawberries," opened by Mr. Geo. Bunyard, who in a short but instructive paper gave his experience on the several kinds most used. An interesting discussion took place, and considerable divergence of opinion was manifested as to the excellence or otherwise of such kinds as Noble, Pauline, Vicomtesse Hericart de Thury, King of the Earlies, &c., and the conclusion arrived at was that a great deal depended on soil, and that it would be well for those who plant Strawberries to ascertain what kinds are suitable for certain soils. The necessity of treating them as biennials for early work was strongly insisted on.

— STRAWBERRIES AND IRON.—I have an impression that some sorts of Strawberries produce finer fruit and more vigorous plants in soils impregnated with iron than where it is absent, notably those of which the British Queen is the chief. Some of your readers who grow Strawberries in the ferruginous soils of Sussex may be able to give information on this point.—T. FRANCIS RIVERS, *Sawbridgeworth*.

— BIRDS AND CATERPILLARS.—Before our district became crowded with colliers we had many hedge-sparrows and other insect-eating birds which fully prevented any plague of caterpillars, but now not a nest escapes the vandals, and cats are so numerous that the old birds are also destroyed. For a time after that change I managed by hand-picking to keep the caterpillars under, and so secured large crops of fruit, but new plantations were being made, whose owners would gladly welcome and gather the fruit, but neither insects nor weeds are destroyed, and I am compelled to submit. I very often think that an Act of Parliament against this carelessness would be a benefit to all concerned. Both sparrows and the blue tomtits are busy at the caterpillars, and an idea has come into my head that to prevent these last named from injuring fruit buds, they might be trapped at the beginning of November, the time they commence their destruction, and kept alive, then let loose after the buds began to expand.—W. T.

— **FRUIT PROSPECTS.**—Mr. John Austen writes from Witley Court Gardens, Stourport :—"Our fruit prospects about here are very bad again. Apples, Pears, Plums, and Damsons almost nil. Strawberries promise to be abundant and fine; we have gathered a few of Noble. Peaches, Nectarines, and Morello Cherries are also good crops."

— **THE TUNBRIDGE WELLS HORTICULTURAL SOCIETY** will hold their thirty-second annual Show on Wednesday, July 9th next, in the Spa Grounds, Tunbridge Wells. Prizes to the total value of £180 are offered in numerous classes, and two of the principal are for eight stove and greenhouse plants and eight foliage plants, the first prizes being £8 and £6 respectively. The Secretary is Mr. W. E. Brampton, 21, Culverden Park Road, Tunbridge Wells.

— **CARDIFF HORTICULTURAL SOCIETY.**—The second Exhibition of this Society takes place in the Sophia Gardens, Cardiff, on August 13th. The Glamorganshire Horticultural Society, which formerly held its Exhibitions at Cardiff, was dissolved two or three years ago, and the present Society has taken its place. At its next Show prizes, open to all, are offered for stove and greenhouse and foliaged plants, Ferns, Fuchsias, and Zonal Pelargoniums.

— **GREENHOUSE SHADING.**—I see you allude (page 484) to a summer greenhouse shading that answered its purpose well. Permit me to draw your attention to a new preparation from Messrs. Clibran, Altrincham, which I have used on my greenhouse. The colour is light green, and so far very pleasing to the eye, a point of some importance. It is made by merely pouring boiling water on the cakes, which can be diluted of any consistency. It remains permanently on, but can be rubbed off at any time. A peculiar merit of it is under rain the glass is almost transparent.—W. J. M.

— **FRUIT TREES AND CATERPILLARS IN BELGIUM.**—The following extract from a letter of an extensive grower of fruit in Belgium has been sent to us for publication :—"All the Pear crop has been destroyed by the Cheimatobia, so has the Apple crop. Half the fruit buds had already been killed by the Anthonomus (the beetle) larvæ. The lackey moth's larvæ have bred by millions this year. In the country lots of trees are bare. In our low-lying plantations we can destroy this pretty well. I am also visited by the scab on the Pears—that is, on the half-dozen that remain on 3000 trees. Fruit growing is getting akin to studying for the medical profession; one has to deal with nothing but diseases."

— **ANTHRACITE COAL.**—We are reminded by a circular from the United Anthracite Collieries that the present is the most favourable time to purchase fuel for gardens. We are told that this smokeless coal has been proved to give off much more heat than coke, requires very little attention, and is free from the sulphurous fumes usually given off by coke and inferior kinds of coal. It is now sold in suitable sizes for all classes of boilers or stoves, being broken and screened. A gentleman of our acquaintance has, by the use of this instead of ordinary coal, reduced his fuel bill more than £100 a-year, and has been enabled to spend that amount extra on plants and trees for his garden.

— **CHERRY HOUSES.**—The cheap, plain, profitable Cherry house of Mr. Rivers at Sawbridgeworth at this season of the year, and earlier, gives rise to a feeling of wonder that Cherry houses are not as common as Peach houses in the gardens of the affluent. It is really nothing more than a boarded shed with a glass roof, perhaps 10 feet wide and not twenty times as long, yet it contains more Cherries than are to be found in half the gardens in Britain, individually of course, not collectively, and the clusters are finer and the fruit larger than are, with very rare exceptions, to be seen on the best grown trees in the open air. The Sawbridgeworth trees are in pots, plunged to the rims in the borders, two rows on each side of the central path, and they are laden with huge bunches of amber, crimson, and nearly black fruit, such as, perhaps, are not to be seen elsewhere. The extraordinary crops and healthy growth are due, no doubt, in a large measure to the top dressing of kiln dust and manure which is permeated by a mass of fibrous roots that gather nourishment for the trees. This appears to be equally efficacious for Peaches and Nectarines in pots, for the trees from 3 to 9 feet in height are laden with fruit, except those from which the crops have been gathered during the past two months and sold for very high prices. The crop of Grapes is remarkable, and Sawbridgeworth is very instructive at this season of the year under glass, for here is very little fruit on open ground trees in this nursery.

— **THE DEATH OF MR. JOHN RAWLINGS**, one of the two brothers trading as Messrs. Rawlings Bros., florists, at Romford, took place on the 4th inst., at the comparatively early age of thirty-five years. He was the third son of Mr. George Rawlings, for so many years a well-known Dahlia cultivator, raiser, and exhibitor, of Bethnal Green and afterwards of Romford. He was apprenticed to a builder, and not liking the business, his indentures were cancelled at the end of five years, and he returned home in 1878. In 1879, Mr. George Rawlings, the father, retired from business, and it passed into the hands of his second and third sons, John the deceased, and Arthur. The brothers were very successful in raising a number of very fine seedling Dahlias, and the first batch of seedlings they sent out in 1879 comprised such fine varieties as Mr. George Harris, Shirley Hibberd, Mrs. N. Halls, Frank Rawlings, and William Rawlings, followed by J. T. West, Mrs. Douglas, Mrs. Glasscock, Mr. George Rawlings, Mr. John Walker, Queen of the Belgians, R. T. Rawlings, T. J. Saltmarsh, Frank Pearce, one of the very best Fancies, and others. The cause of death was pleurisy, brought on by a severe cold. In 1888 a heavy flood visited Romford, and John Rawlings, in endeavouring to save the life of a man who had fallen into the river, was pul'ed in, with the result that he caught a severe cold, which appears to have undermined his constitution, and hastened his death, to the great grief of his relatives.—R. D.

— **THE GARDENERS' ORPHAN FUND.**—A special meeting of the Committee was held at the Caledonian Hotel, Adelphi, on 13th inst., Mr. John Laing presiding. The Hon. Secretary, Mr. A. F. Barron, reported that the Chairman, Mr. George Deal, was in a very critical state of health, an announcement received with the greatest regret by the Committee. The minutes of the last meeting having been read, the balance at the bank was stated to be £518 12s. 4d., Mr. Barron reporting that annual subscriptions were being paid much better than last year, the sum of £400 having been received to date. A financial statement in reference to the late Covent Garden Fête was then submitted, showing that the total receipts amounted to £262 13s., and the expenses £91 15s. 5d., showing a clear gain of £170 17s. 7d. The sum received by means of collecting boxes was £20 3s. It was unanimously resolved that thirty-four special life votes in accordance with the amendment in rule 12 be placed at the disposal of the Sub-Committee of standholders appointed to assist in carrying out the Fête in May, 1891, and that Mr. Asbee be requested to obtain the names of the standholders selected to receive the same. A hearty vote of thanks was passed to the standholders for making such an admirable display. Several details connected with the coming annual dinner were considered and arranged. Later on in the evening a meeting took place of the joint Committee for carrying out the Fête, Mr. Asbee presiding over a good attendance of members. Mr. Barron having made a statement as to the receipts and expenditure, it was unanimously resolved that a letter of thanks be sent to the Lord and Lady Mayoress, the Duke and Duchess of Bedford, Sir Julian and Lady Goldsmid, and to all the standholders who assisted in making the display. Hearty votes of thanks were passed to the young ladies who took charge of the collecting boxes, and to others, which brought the proceedings to a close.

— **THE excursion given annually by Messrs. SUTTON & SONS**, Reading, to their *employés*, took place on Tuesday, June 10th, to Bournemouth. A special train was engaged by the firm to convey the party, numbering upwards of 500, and in consequence of the excellent arrangements the journey both ways was accomplished in remarkably good time. Each *employé* received a free railway ticket and a liberal sum of money for refreshments, boating trips, &c., and in addition each married man was allowed a railway ticket for his wife. Mr. Martin Hope Sutton, Mr. Martin J. Sutton, Mr. Herbert Sutton, Mr. A. W. Sutton, with several members of their respective families accompanied the party, and everything was done to insure the comfort and enjoyment of the many hundreds who took part in this annual outing, which Messrs. Sutton have given for more than thirty years.

— **SUCCESSFUL CULTURE OF PEAS IN POTS.**—Some of the very finest crops of early Peas I have ever seen were grown this season by Mr. A. Miller, gardener to W. H. Long, Esq., M.P., Rood Ashton, Trowbridge. The variety grown was my old favourite, Carter's Stratagem, and it is not often finer or better filled pods are seen of this popular exhibition variety. It was not merely one or two small dishes that were grown, but good gatherings were ready by the second week in May, and on and about May 21st two or three pecks of perfect pods were available. Some of these, or two large dishes, were shown at the Bath Spring Show, and proved altogether superior to any other exhibits of the same

kind. Both 10-inch and 12-inch pots, firmly filled with rich loamy soil, were used, the seed being sown early in January. At the outset the pots were set in an early Peach house, but as soon as the plants were well up all were transferred to a cool house. They were duly lightly staked, and the rest consisted of attending well to the watering, applications of liquid manure varying the usual routine.—I.

drained, a light position, and plenty of water during summer. Beyond these hints much depends upon the cultivator's personal attention and careful management.

The illustration (lent by Mr. W. Bull, 536, King's Road, Chelsea), represents some new varieties which are described by the introducer under the name of *Sonerila orientalis*, *guttulata pieta*, and *punctata* as



FIG. 77.—NEW SONERILAS.

NEW SONERILAS.

BEAUTIFUL foliage distinguishes a large number of the Melastimaceous plants, and amongst these the *Sonerilas* may be placed, sharing the neglect which renders so many of the family comparatively scarce in gardens. Because they require close attention to grow them well and preserve their beauty should be no argument against their culture. Some manage them successfully with little difficulty, and there is no reason why others should not make an effort to secure similar results. They require a stove temperature, shallow pans of peat and moss well

follows :—“ The flowers, which are of a bright rose or purple colour, are produced in the utmost profusion from the top of every growth, the mass of bloom thus thrown just above the foliage having a most pleasing effect, considerably enhanced by the prominent horn-like bright golden anthers. The foliage is also very ornamental, one variety having a very striking blotch or bar of creamy white in the centre of the leaf, another has crimson maroon leaves covered with scarlet hairs, while the foliage of the other two kinds are decorated with a multitude of white dots or spots on light and dark green grounds respectively. They were discovered on the Arracan Hills at an elevation of 4000 feet.’”

PROPOSED FRUIT SHOW IN THE CITY OF LONDON.

ON the invitation of Sir James Whitehead, Bart., Master of the Fruiterers' Company, the following gentlemen assembled in the Guildhall on Monday afternoon last to confer with a Committee of the Company on the advisability of holding an exhibition of home grown fruit in the City of London during the ensuing autumn—namely, Messrs. A. F. Barron, G. Bunyard, J. Cheal, J. Emerson, Shirley Hibberd, Faunce de Laune, J. Laing, G. Paul, T. F. Rivers, A. H. Smee, H. Turner, and J. Wright. Dr. Hogg, Mr. William Paul, and others, who approved of the action of the Fruiterers' Company, were unable to attend. Dr. Fotherby, R. S. Mason, and H. R. Williams, Esqs., Past Masters, with Mr. O. C. T. Eggleton, were present on the occasion.

Sir James Whitehead presided, and in a lucid address explained the objects in view. He pointed out that the cultivation of useful hardy fruits is not now practised in nearly so many gardens of cottagers and farmers as was the case a generation ago. He did not know the reason of that, but his observations, in the northern counties more particularly, led him to believe such was the fact. He thought it must be to the advantage of families in rural districts to have a larger and better supply of fruit grown on their homesteads. During his mayoralty last year he made an appeal to the public to raise a sufficient fund for yielding an annual income to be applied to the furtherance of that object. At the present time subscriptions amounted to about £1500. He wished to draw public attention to the desire of the Fruiterers' Company to increase that fund, and the best method of doing so was the question they had to consider. The proposition to hold a fruit show under the Company's auspices in the City had been favourably received, and if it was considered practicable by the practical men around him he should do his best, as would his colleagues, to make it a success. He wished it to be distinctly understood that they had no idea of being in opposition to or acting in conflict with any existing society or association which was working to the same good end, but the Fruiterers' Company had done a little, and desired to do more, and he therefore asked for co-operation and suggestions.

The first question that arose was whether there would be any fruit to show this year, and it was stated that several districts were practically destitute of fruit, especially of the larger kinds; but when Mr. Smee ventured to say he could fill half the Guildhall with Apples from one county—Surrey—and Mr. Bunyard said the other half could be filled from Kent if needed, the question was settled, and there was a general consensus of opinion that, no matter how sparse the crops, sufficient fruit was always forthcoming for exhibiting when adequate inducements were offered to cultivators.

A conversation ensued on the advisability of the Royal Horticultural Society assisting in the project, Mr. George Paul remarking that he believed the Council would regard the matter favourably, but he had no authority to give any definite pledge. Mr. Shirley Hibberd thought such co-operation might be advantageous, and as a Fellow of the Society he concurred in the suggestion. Mr. Bunyard was of opinion that if the Society's proposed exhibition of preserved fruits were added to a City Apple and Pear Show, the exhibition would be more complete. Mr. Wright thought the question was one for consideration by the Court of Fruiterers' Company on the one hand, and the Council of the Society on the other, to consider and decide. If he thought the proposed City Show was in any way antagonistic to the Royal Horticultural Society, or any Society, he would have nothing to do with it, but it was not. Mr. Smee thought it would be well to see what the City could do this year. It was eventually decided, probably in view of the time that would be occupied in negotiations, that this year the Fruiterers' Company should do the best they could without any formal alliance, and welcome assistance from whatever quarter it might come.

The following resolution, proposed by Mr. Smee, seconded by Mr. Rivers, and supported by Mr. Hibberd, was passed unanimously:—
"That this meeting of a Committee of the Fruiterers' Company and of practical fruit growers, is of opinion that an exhibition of home-grown fruit, implements, &c., held in the City of London in the autumn of the present year would tend to increase the interest of the general public in the cultivation of fruit in our homesteads and cottage gardens."

A sub-committee was appointed consisting of Messrs. Bunyard, Cheal, Hibberd, Rivers, Smee, and Wright, to act with the Fruiterers' Company in carrying out the above resolution.

GARDENERS' MUTUAL IMPROVEMENT ASSOCIATIONS.

[Prize Essay, by Mr. J. Barry, Chiswick Gardeners' Mutual Improvement Association.]

THERE can be no doubt that the existence of gardeners' improvement associations has a beneficial and educational influence upon those drawn within their sphere of operations, and this influence for good will be proportionate to the manner in which they are conducted. The craft is clannish to a degree, and despite the unavoidable isolation we have always been socialistic, and these societies will make us more so by giving us opportunities of knowing each other better, and of uniting our forces for the general welfare of our body. Moreover, the meetings of these associations are calculated to induce young men to employ their spare time profitably. This is an important step, as it will lead them on to the high road of thoughtfulness, which lead to self respect and the resolve to be somebodies. Such associations, too, inspire young men with the desirable ambition of being able to express their thoughts

intelligibly, and if this was the only result achieved by attendance at such meetings, it would be of the greatest service to them in after life, when filling positions of trust. In many private places the gardener must possess conversational powers, and be able to converse freely about his calling with those whom he is serving. A good address in a man is a valuable accomplishment. It wants, however, to be properly balanced, so as not to degenerate into mere talkativeness. "Work not words" is a good old maxim.

Reverting to our subject, such associations are, if properly conducted, a great power for good. They create, as already observed, a social intercourse between members of the craft, and are the means of disseminating the knowledge of the elder among the younger members, and, what is more, the discussions that ensue have a tendency to destroy false or wrong notions, and often create new ideas that only remain to be put into practice to prove the fallacy of earlier notions on the same subject. One direct aim of such associations is to diffuse knowledge. It is the positive duty of all to acquire knowledge by observation, by reflection, by reading, and by listening to the informed; for the greater the general stock of knowledge of each individual the more is his own well-being promoted, and the more is society benefited. Knowledge is not limited in its quantity, its portals are ever thrown open wide to all who may choose to enter, and is not, fortunately, in the age in which we live, confined to particular classes. The first step in the successful acquisition of any branch of knowledge is to learn to exercise the powers of observation. It is, for example, by constantly observing the peculiarities in plant life—that truly wonderful and beautiful field of exploration—that the readiest perception is acquired of their structure and habits and qualities, which a less practised observer would entirely overlook.

It has been urged as an objection to gardeners' associations that they encourage high flown and scientific ideas, and yet undoubtedly the gardener who can combine a true knowledge of science with his daily practice is bound to become a successful cultivator. I recollect that at a certain association a paper was announced to be read on "Vegetable Physiology." One of the "old school" of gardeners remarked to me, "I am successful without knowing anything of physiology! Many good gardeners do not clearly understand the word." This may be, but they would be all the better gardeners by a correct understanding of it. Every gardener in this age who aspires to being a somebody in his profession should have some knowledge of vegetable physiology. He ought at least to be so far acquainted with its true principles as to be able to conduct his operations with some degree of certainty.

OFFICERS.

Under this general heading I will venture to throw out some hints as to the selection by the members of the executive of these associations. Relative to the composition of the managing body or executive committee, it is most important to success that a good chairman be secured. He should be a man of tact, winning manners, business aptitude, strict impartiality, broad-minded views, used to presiding at such meetings, and well versed in horticultural matters. Do not think I am creating an ideal man. Men possessing the characteristics I have mentioned may be found for the looking, and when applied to will be found willing to place their services in the hands of those requiring them. The chairman's authority should always be upheld by the members generally. A good man will never exceed it. The secretary should be a real worker, zealous for the welfare of the association, striving to work up his district by inducing all the gardeners living in it to become members, so that the place of meeting should be one from which horticultural "light" should be ever radiating. It is a good course of procedure to change the secretary annually if possible. There is nothing like a pretty constant infusion of new blood in such matters. Keep a man in office too long and he is apt to lose an interest in the work, and perhaps become proud and independent. This yearly change would give all a chance of making themselves useful in carrying on the work of the association, and taking greater interest in its welfare. The committee, which should not be a large one, ought to consist of good men, each and all heartily anxious for the thorough success of the association. Let all be workers, and make a point of attending every committee meeting. It is very advisable to have changes on the committee from time to time, in order that all the members of the society should have placed at their disposal a voice in the management of its business.

PAPERS.

It is the custom of some societies to rely a good deal upon what may be called "outside aid." It may be well to have a particularly strong outside light to shine occasionally, but outsiders should not be wholly depended upon, or, indeed, to any considerable extent. It is much better that the members should contribute the greater portion of the papers read at the meetings. I have been inquiring about a neighbouring association—that at Kew—as to their course of procedure in these matters, and I am told that they have no outside aid whatever. Perhaps the rule would not be very easy of application, but I should like to see one put in motion requiring every member to contribute a paper during the course of the session. The members, by contributing the papers, would be more in touch with each other, and the discussions be better, as the members have naturally some reluctance in criticising a paper read by a comparative stranger. Young men are somewhat reluctant to contribute papers, and yet they have nothing to fear or lose by a little bold action—indeed, very much to gain by such a course. The preparation of papers induces thought, and consequently attention,

which must be of service to those so employed. If young men employed in gardens were to provide themselves with a note-book, and jot down therein short notes of the things that arrest their attention in the course of their daily vocations, much good would inevitably result. How valuable such records might prove in after life. And from these notes often short papers might be prepared, and the difficulties the writers have met with could be touched upon. In most cases the problems would satisfactorily solve themselves when brought under the notice of their fellow members.

DISCUSSIONS.

Nervousness here, too, is often shown by members, and yet discussions are the very life of these meetings. They are not only the means of disseminating knowledge, but by joining in them members acquire that important qualification in these days, the power of expressing their ideas in an intelligible form. With a view to encourage general discussion it is a commendable custom to give the secretary good notice of any paper intended to be read, so that he may announce it for the information of members, that they may be prepared to discuss it when the proper time arrives. I would strongly advise the younger members in such cases to look up books bearing upon the subject to be dwelt upon, and mark carefully therein any references to the matter about to be debated, and then read these at the meetings. This is a perfectly legitimate manner of proceeding. The younger members are not expected to treat the matter from a practical and experienced point of view, and the course here recommended for adoption will give them courage, and serve as a training for the more important and influential part they may be naturally expected to play as their connection with the association extends. A word of advice here. I would earnestly impress upon those who promise papers to read them, or get someone else to do so for them, on the date fixed. It is not very cheering for a secretary to receive, a day before the meeting, a note intimating that the paper arranged cannot be read. I have known one or two cases in which such notice was not even given. Nothing is more disappointing—I had almost written exasperating—than for the members to find the reader, for whom they have prepared matter for discussion, not to put in an appearance, and much injury is done to the association. It is a good rule to allow each member who speaks in reply ten minutes. This generally gives a chance for all who wish to do so to join in the discussion, and then, if time permits, a few members will be able to speak a second time.

EXHIBITION OF PLANTS, &C., AT MEETINGS.

It is the custom in some societies for the members to exhibit plants, cut flowers, &c., at the meetings, and for marks or certificates of merit to be awarded to the best exhibits. An interest is thereby aroused in such meetings that must be an advantage to those assembled. It is a capital plan, as tending to develop good cultivation and a spirit of healthy rivalry. The idea of illustrating the paper sometimes by the fruit or plant on which it treats is a most commendable one. For instance, suppose a short paper is read on Madresfield Court Grape, and fine examples be exhibited, being free from blemish. The reader would doubtless be called upon for an explanation of the system of culture which produced this much-to-be-desired result. This would prove of great value to growers of this variety there present who had not been so fortunate as the lecturer in preventing cracking. Instances of this character might be multiplied, but one instance is quite sufficient to convey the object I have in view in drawing attention to this most important matter.

LIBRARY.

This is a useful addition to any society. Its great advantages are so self-evident that no words of mine are needed to point them out. Money spent in good books is never wasted. I refer for one moment, by way of encouragement to others similarly engaged, to the prosperous Gardeners' Society at Birmingham. In the first year of its establishment, some three or four years ago, the sum of £60 7s. 6d. was received for the library; 100 volumes of books were then purchased, and twenty books and thirty-two bound volumes of magazines and other periodicals presented, making a total of 152 books. By the courtesy of Mr. Hughes, the ever-busy and efficient Secretary, I have seen a list of the books in the library, and a very satisfactory one it is. Mr. Hughes has also informed me that two most excellent works have recently been added to their library—namely, "Sowerby's English Botany" and the "Herefordshire Pomona."

ATTENDANCES.

Where other engagements permit, these should be made as frequent as possible by the members to the extent of a little personal sacrifice at times. It is only by constant attendance and attention at these meetings that the good derivable from them can be maintained and shared in to its fullest degree, and yet another most important point highly worthy of earnest consideration by those concerned. There is nothing more distressing and discouraging to a reader than to find a poor attendance. He has taken, doubtless, a lot of trouble; made researches costing him valuable time and care, given expression to (may be) new ideas, indeed has done everything, so far as he is individually concerned, to make his subject a successful one, and has as his reward a miserable attendance. It is very distracting, too, for members to come late after the reading of the paper has commenced, or to leave, as they do sometimes, before the task is finished. Members should make a point of being at the meetings when business begins, and always, if they can possibly do so, stop until the close of the discussion, which

forms one of the most valuable and instructive features of the evening. Always give readers a good attendance and thorough attention. It is an appreciation which they esteem, a recompense for voluntary labour rendered for the general good, and an act on the part of the hearers which calls for no great sacrifice in any way. As good examples are always well worthy of record, it may be mentioned that the members of the Birmingham Society make an average attendance of 100 per meeting.

EXCURSIONS, &C.

Last year the members of the Birmingham Society made a trip to the famed gardens at Heckfield, and it would be a good thing if a plan of making excursions were more generally adopted. New modes of gardening practice would, doubtless, be noticed on such visits, which could not fail to benefit those taking part. Having an affinity with the excursion plan is the capital custom followed in some societies of the members at the conclusion of the session dining together, thus constituting a happy break to the more serious business in which the members had, up to that time, been engaged.

MUTUAL ASSISTANCE.

A "notion" occurs to me here that I should like to see carried out. It is this: "That in all meeting places of these associations there should be a "benevolent box," into which the members might voluntarily—not compulsorily—drop a mite now and then, these donations to be devoted to alleviating distress caused by a member's illness or loss of employment.

PRIZES FOR ESSAYS.

In some associations prizes are offered for essays on horticultural subjects—a capital idea, as fostering thought and creating a taste for literary work; although not absolutely essential, yet an acquirement of the latter qualification by gardeners would tend to much good. The members of the Chiswick Association are fortunate in receiving much assistance in this direction, year by year, through the generosity and thoughtfulness of Mrs. S. A. Lee. That these competitions have done, are doing, and will do yet, much good, I am persuaded. One, however, would like to see the matter taken up more widely, and with greater spirit by the members generally.



FIRST FRUITS.

EVERYTHING gives promise of an early season. Already comes the cry from some of our earlier districts, such as Reigate, that all the Roses will be over before the large shows commence, and already have we been getting some of the first fruits of the harvest we hope to reap by-and-by. With the exception of a sharp touch of frost on May 31st, which in some places seems to have caused much injury, but which happily was not general, and did its damage mostly in low-lying places, Roses have not had any check this spring, and as far as I have seen them nothing can exceed their health and freedom from aphid; maggots, too, have been by no means so abundant as in some seasons, and delightful showers have made all "go merry as a marriage bell." Of course the unexpected may happen, but I shall be much surprised if we do not have a fine season.

Those who, like myself, have a piece of wall have been for some time rejoicing in blooms of good quality. Climbing *Devoniensis*, *Bouquet d'Or*, *William A. Richardson*, *Catherine Mermet*, *Emile Dupuy* have opened well, and made us think of what is in store for us. On this wall, too, *L'Idéale* has bloomed, and fully justifies one's anticipations; the colour is most lovely, and the flower is larger than I expected it would have been. The plant seems to be vigorous, and I have no doubt that it will be a most useful garden and decorative Rose. *Lady Castlereagh* has also opened well; the colour is a soft delicate blush slightly suffused with yellow, reminding one somewhat of that grand *Rose Souvenir d'Elise*, but quite distinct from it.

In the open ground the first H.P. to open with me has been *Gloire de Margottin*, of which I cut a really fine bloom on June 3rd. Brilliant in colouring, deliciously fragrant, and as this was the last Rose I cut in October, it may fairly lay claim to being one of the best garden Roses introduced of late years. No other H.P. has as yet shown blooms at all in form, but this was as good as could be cut at any time. But several Teas have rejoiced me. Amongst them I have been much pleased with

Edouard Gautier.—I am not sure that it will be large enough to be an exhibition Rose, but it is very pretty, a slightly suffused yellow in colour, but excellent in shape, and even should it not be large enough for an exhibition it will be a capital one for bouquets.

Souvenir de Sarah A. Prince.—We have here a flower that will be of much use; it is of the same form as *Souvenir d'un Ami*, from which it has sported, and while it is an undoubted acquisition will also bring to memory one whom all who ever visited the Oxford Roses must remember with the most kindly feelings.

Of the Hybrid Teas I have already cut very fine blooms of Viscountess Folkestone and Grace Darling, both very lovely and delicate Roses. I am at a loss to conceive how anyone could doubt in what category to place these varieties. The foliage of the former is so unlike that of a Tea, and the latter has so little (if any) of the perfume of that fragrant class.

There is a point much mooted amongst Rose growers as to the relative merits of planting Teas in the autumn or laying them in and planting in the spring, and I have lately seen a letter in one of the papers commending the former. My own experience is the reverse. Owing to some mistake there were some of my Teas which I did not receive until the ground was too cold and wet for planting. I laid these in; protected them during frost. These have done a great deal better than those which had been planted in the early autumn, and therefore when either climate or soil are unfavourable no one, I think, need fear to grow Teas if they adopt this practice. I have been told by Mr. Frank Cant, whose fine blooms have delighted many of us, that he always lifts his Teas in the autumn, replanting them immediately, that this gives them a check; they do not start so early, and are not so likely to be damaged by spring frosts. A hint that may be useful to some growers.

I have just seen on one of my plants a blossom of Mrs. James Wilson, one of Messrs. Dickson & Sons' novelties, which seems singularly bright and a good grower.—D., Deal.

ROSE SHOW FIXTURES, 1890.

- June 19th.—Ryde.
 ,, 24th.—Drill Hall, Westminster (N.R.S.).
 ,, 25th.—Richmond (Surrey).
 ,, 27th.—Royal Aquarium, Westminster.
 ,, 28th.—Eltham, Reigate.
 July 1st.—Canterbury, Colchester, Hereford, Sutton.
 ,, 2nd.—Bagshot, Brockham, Croydon, Dursley, Hitchin.
 ,, 3rd.—Bath, Farningham, Norwich.
 ,, 5th.—Crystal Palace (N.R.S.).
 ,, 8th.—Gloucester, Ipswich, *Winchester.
 ,, 9th.—*Brighton, Diss, Ealing, Tunbridge Wells.
 ,, 10th.—Birkenhead, Woodbridge, Worksop.
 ,, 11th.—Ulverston.
 ,, 12th.—New Brighton.
 ,, 15th.—Christleton.
 ,, 17th.—Birmingham (N.R.S.), Helensburgh.
 ,, 22nd.—Tibshelf.
 ,, 24th.—Salterhebble (Halifax).
 Aug. 2nd.—Ripley.

*In the case of Brighton and Winchester, where the Shows extend over more than one day, the date of the first day's exhibition only is given.—EDWARD MAWLEY, *Rosebank, Berkhamsted, Herts.*

CURRENTS, GOOSEBERRIES, RASPBERRIES.

WE recently promised to reproduce one of our old friend, Mr. Robert Fenn's articles, written nearly forty years ago. It is as follows:—

"Now I am 'I th' vein' (and the majority of my countrymen and women in bed and asleep), I will detail one or two little contrivances that I have been working upon this season, such as protecting and training my Currants, Gooseberries, and Raspberries.

I do not, however, pretend to say that these things have not been done before, suffice it in me to affirm I never saw or heard of any like them, or did anyone that I have come in contact with; therefore, if the ideas are not new they are not generally known; which to all holders of small gardens infested with birds they ought to be, or some other contrivances which may be better.

I am a great lover of birds, I like to see and hear them about me, though not one particle of fruit would they leave me here if I did not look strictly after it upon the netting principle.

Training Currants.—In my small garden, 46 yards long by 30 broad, I dare only allow myself seven Currant bushes, two of White and five Red, with a few temporary ones against the wall, merely to occupy the space till the young fruit trees fill it up. These seven Currant bushes are planted on the fruit border; they stand, as it were, in the angle of a triangle between each fruit tree, so that they do not shade or rob the roots of the trees in any degree to be injurious. The branches of the bushes proceed from one short main stem, and when trained, as I shall presently show, appear like an inverted cone. Procure two forked stakes 3 feet long, drive them into the ground 6 inches, one on each side the bush, then fasten a wooden hoop 2 feet 3 inches diameter horizontally upon them, and fasten the branches *within* side the hoop equidistant around with zinc wire. (If I were called upon to subscribe to a memorial for the men who invented zinc wire and blotting paper, I would certainly do so.)

Currant Protectors.—Procure four stakes 1 inch in diameter and 4 feet long, and two strong wooden hoops 3 feet diameter, nail the stakes equidistant firmly to the hoops, allowing one hoop to be 6 inches within the *bottom* of the stakes, and the other even with their tops. Now fasten eight smaller rods between the four rods, and even with the top and bottom hoop; place the machine topsy turvy, and slightly drive some tin-tacks 4 inches apart all round the edge of the hoop, return the machine to its first position, and in a similar manner drive some tacks

round the upper edge of the top hoop, lay the construction on its side, and drive some tacks 4 inches apart the whole distance between the hoops on one of the four stoutest stakes, or now, more properly speaking, supports; from this extension motion again come to the first position, and see how completely you can fasten a net round and over the top through the agency of the tin-tacks. Sharpen the four 6-inch legs, and the thing is complete.

Can you fancy anything more to the purpose, or much cheaper than this for placing over, remaining firm and thoroughly protecting the fruit from damp and the feathered tribe, or, as a lady expressed to me the other day, "from the fingers of the hipeds also?"

Last, and by no means the least, the foliage by this contrivance is preserved fresh and green. Everybody knows how soon the leaves turn yellow if the trees are matted up, and everybody knows, or at least should know, that if this is the case they cannot expect a good crop of fruit the following season; and as regards the look of the thing, behold the bright red fruit and the dark green foliage, and contrast a tree matted up as if it was in the last stage of consumption. These netted machines will be of immense service in the spring to pop over the bushes when frosts as well as birds prevail.

Gooseberry Training.—I had been worrying myself many months about my Gooseberry bushes; I wanted to train them as espaliers, but I was obliged to halt in this opinion, for the tremendous broadsides we get here in the shape of wind is something a storm at sea might envy. At the moment I now write the wind is cracking its cheeks over my horticultural productions in style, and I fear bent on mischief. I have everything, however, on the post-and-rail principle, so I can in a great measure defy it.

A very famous Gooseberry cultivator in this town trains his bushes on the table-trellis system, but the enormous quantity of hooks, crooks, stakes, and props that he brings into play in order to effect it frightened me completely, and I was on the eve of letting my bushes grow in their natural way, which, with the large sorts now in vogue means sprawling on the ground, but an article on trellises some time ago brushed up the idea again, and I think I have mastered myself.

Take two forked stakes 1 foot 6 inches long, drive them into the ground 6 inches, one on each side the bush, then fasten a wooden hoop 2 feet 3 inches diameter horizontally upon them. Attach the branches of the bushes to the upper edge of the hoop with zinc wire, placing them similar to the spokes of a wheel.

This is really a very simple proceeding, and I do not think I should have mentioned it here were it not that most people who see the plan pronounce it something that they never saw before, and approve of it mightily. The bushes certainly have a very compact appearance, and I must say that until I see a better system I shall continue to train them in this manner. As to the fruit it hangs suspended in the safest way possible, not a splash can reach, not a thorn can prick them, and this is saying a great deal. I wish I was in a similarly safe position.

My Gooseberry bushes are planted in a parallel row alongside the garden walk, the width of border I allow for them is 4 feet. I intend to net them in exactly the same manner that I do the Strawberry, and using two nets instead of one to hang down each side. The same nets that are on the Strawberries will always be done with in time, and he at liberty for the Gooseberries just as they begin to ripen, and again in the spring when frosts and birds prevail.

I train my Raspberries along a single rail. This is much better, I think, than tying them to stakes; they have more freedom, and this fruit, like our own country, flourishes better in such a state than some other nations of Europe which I could mention. Raspberries are difficult to net, at least so far as expense is concerned, but the thing could be done easily enough by making a temporary framework sufficiently high to walk under, and straining a net entirely over it. I think it was Mr. Errington who mentioned two pieces of glass as a scarecrow, and finding that as fast as my Raspberries began to ripen the other day they disappeared immediately, I procured three tapering rods 8 feet long, $\frac{3}{4}$ -inch diameter at their base, placed them slanting and firm in the soil between my canes, fastened two pieces of string 3 feet long to their tops about an inch apart, made fast two pieces of glass to the ends of the string, and the result is that not a bird has shown its beak amongst my Raspberries since. How long this state of things will continue remains to be seen; birds soon get accustomed to scarecrows.—UPWARDS AND ONWARDS.

CLEANING THE SURFACE OF PONDS.

I SEEM to think that a little further advice to "A. McK." about cleaning algae, duckweed, &c., from ponds may not come amiss. I do not approve of ducks. They must be perpetually there, and they keep the water in a perpetual state of muddiness in small ponds, which becomes as had to look upon, or worse, than the slime. "A. B. D.'s" remedy is drastic; but it is, I fancy, on too extensive a scale for "A. McK." My ponds have the finest spring water continually flowing into and out of them, but in the spring-time and the early part of summer the green slime creates itself as quick as yeast upon new beer in a fermenting tub. I was unsuccessful in many ways, even to the thoroughness of "A. B. D.," till at last a long-handled bass-hoorn (wha'chone) came to my aid. This is used effectually by the user standing near the margin of the water, inserting the head of the hoorn at arms' length into the surface slime, and with a drawing motion it will be collected and cling to the bristles, and at once made to

become ejected into a wheelbarrow by striking the handle of the broom smartly upon a rail made to lie suspended across it. The action of drawing the broom will cause the water to circulate, and a fresh burden of slime will be ready within arms' length each time the collection is ejected from the broom-head into the barrow, and so on till the slime, or what not, from the water's surface is soon cleared off. I am careful to have it done almost daily from the pond where my cows drink.—ROBT. FENN.

CALIFORNIAN PALMS.

THE most remarkable arboreal feature of the deserts of southern California is the Washingtonia. It is as pre-eminent in its arid home as the Sequoia is in the forests of the Sierra, which it further resembles in growing only in a limited area. Perhaps the comparison may be carried further, for as the "Big Trees" now living are but the lingering giants of a vanished forest, so it is probable that these Palms are the scattered descendants of a more abundant race that once occupied the borders of the arm of the Californian Gulf which filled formerly the bed of the desert they now inhabit. We find them further north and west, at Whitewater, at an altitude of 1126 feet. Thence the desert, broadening into a wide valley, falls rapidly, till at Indio, only seven miles away, it is 20 feet below the sea level, and at Frink's Spring, twenty miles further east, it is 260 feet below. In this depression the lingering waters formed a salt lake so recently that the record of its slowly receding levels is still visible in the discolorations of the cliffs which in places once formed its shore. It is along the hills which border the bed of this extinct sea that the most extensive Palm groves are found, while scattering trees mark the direction of the channel which once led to the gulf.

These considerations may explain the anomaly presented by this Palm of being the only arborescent species in the United States which grows at any great distance from the sea. Its station at Whitewater is the northern limit of Palm growth on the western side of the American continent, more than a degree further south than is reached by the Sabal Palmetto on the eastern coast.

The Southern Pacific Railway runs through the desert I have mentioned, and between Indio and Seven-Palms stations some large groves of Washingtonias can be seen at the bases of the hills, a few miles to the north. A surface overlaying water, brown with alkali, produces here strips of damp soil, whitened with saline incrustations which coat even the stems of the Salt Grass (*Distichlis maritima*) which spreads a sod of dingy green, grateful amid the surrounding bareness. Here the Desert Palm finds a congenial soil, for it is an oasis plant, and requires moisture for its roots. Though the most accessible, these are not the most satisfactory groves to visit. The number of really fine specimens here is not great, and most are badly damaged by fire. Their open situation exposes them to the full force of the desert siroccos, so that they have a gaunt and worn look, as if the struggle for existence had been hard. A smaller but much finer group is to be found in a sheltered canon of the San Jacinto Mountains some ten miles south of Seven-Palms station. Following a short distance the slender stream of clear water that runs through the narrow bed of this canon a more open place is reached, floored with wet sand in which lie half buried great angular fragments of granite. Here are growing a hundred Palms, mostly in the sand, but a few on the steep hillsides. There are some noble trees here, and the whole grove has an aspect of thrift.

Dr. Parry tells us that the Desert Palm was discovered by the botanists of the Mexican Boundary Survey, who supposed it to be the Palmetto of the American coast. However, no mention is made of it in the report, and its first appearance in botanical literature is in the Smithsonian Report for 1860, where Cooper refers it doubtfully to *Brahea dulcis*, Mart. Then Herr Wendland, the distinguished Palmographer of Hanover, placed it in *Prichardia*, as *P. filamentosa*. Later, erecting for it a new genus, he called it *Washingtonia filifera*, fittingly reviving for the generic name one formerly bestowed on the Sequoia, but which the law of priority did not permit that genus to stand. The change in the specific name was less happy, as the strict construction of the recent reformers of nomenclature will demand that it be changed to *filamentosa*. Somewhere it has also picked up the name of *Brahea filifera*, by which it is usually known in horticulture. Its common names in California are Desert Palm, Fan Palm, or sometimes San Diego Palm, from its growing wild in the United States, only in that county, and not in San Bernardino, as is usually stated in botanical works.

Seventy-five feet is probably the greatest height reached by the Desert Palm. The top is crowned by a cluster of light green leaves, whose stout stems, deeply channelled and beset along the edges with hooked spines, are 8 feet or more in length. The plaited blades are some 4 feet in diameter, gladiately cleft at the edges, which are abundantly furnished with long, thread-like filaments. The leaves gradually turn down with age, until at last, layer over layer, they surround the trunk with a dry thatch, which descends in a regular cone from the verdant crown to the ground. This makes an admirable natural protection to the trunk from the scorching heat and drying winds of the desert. Unfortunately most trees have been deprived of this mantle. Its inflammable material is easily kindled by an accidental fire, and is an almost irresistible temptation to the passing vandal; but the most destruction is attributed to the desert Indians, who are said to burn the dry leaves that they may more easily gather the fruit. That

any plants survive this ordeal of flame is strong evidence of the vitality of the species. No endogen could live through such a martyrdom. But of all the Palms of a fruiting size growing in the Colorado Desert very few have escaped it. I remember seeing only one tree, and that not over 20 feet high, with its protecting thatch uninjured. Naturally it would persist certainly many years. On cultivated trees where the dead leaves are kept cut off close to the trunk their fibrous bosses adhere so long that not more than 4 feet at the base will be free from them in a twenty-year-old tree. The bark is then seen to be grey, with close transverse fissures. The wood is fibrovascular, with a specific gravity of 0.51.

A mature tree produces in June three or four large panicles of small scorious flowers. The stout terete peduncle ascends from the axil of a leaf near the centre of the crown, and is of the length of the petioles, so that the ultimate divisions droop over the blades. Gradually the peduncle declines, till, in September or October, the ripe fruit hangs pendent over the mass of dead leaves. Each cluster produces some ten pounds of fruit, the size of a large pea, with a thin, sweetish pulp and a bony seed.

The Desert Palm was early planted at the old Spanish missions, and some fine specimens still remain. One of the best is in the grounds of Mr. T. H. Ramirez, in Los Angeles, and is now fifty years old. A careful estimate of the height, made recently by the Rev. J. C. Nevin is as follows:—Height of living leaves, 14 feet; mass of dead leaves, 10 feet; trunk, 34 feet; total height, 58 feet; circumference 3 feet from ground, 10 feet 10 $\frac{3}{4}$ inches.

The same tree was measured in 1880 by Dr. Engelmann, who estimated the height as substantially the same, and found the circumference to be only 4 inches less.

A tree growing on Second Street in San Bernardino, twenty-two years from the seed, measures:—To the leaves 22 feet; roof crown, 10 feet; total height, 32 feet; circumference 3 feet from ground, 9 feet 2 inches. This tree has produced flowers and fruit for the first time the present year. During the last few years many thousands of these Palms have been planted in southern California, which in time will become notable features in the landscape.

So far as is actually known, the Palm already described is the only one indigenous in California, or indeed anywhere in the United States west of the Atlantic and Gulf coast-regions. There are, however, some indications that other species may be waiting discovery. Two species of *Erythraea* are near our borders. *E. edulis*, *Watts.*, inhabits the island of Guadaloupe, off the coast of Lower California, while *E. armata*, *Watts.*, comes within thirty miles of the boundary on the Mexican side, and may be found in some yet unexplored canon on the American side.

Ten years ago Mr. W. G. Wright obtained from the desert Indians a few Palm seed of different kinds, which appear to belong to no known species. They were represented to have been procured in the neighbouring desert, but the most zealous efforts failed to lead to the discovery of the trees. There is some reason to think that they may have been brought from Mexican territory.

Washingtonia robusta, described by Wendland in 1883, is also supposed to be Californian, but its origin and character are alike doubtful. It was founded on some young plants raised in a Dutch nursery, the seeds of which were supposed by the proposer of the species to have come from the "Valley of the Sacramento River, in California"—an obvious error. Again, M. Roetz is said (by E. André in the *Revue Horticole*) "to have gathered the fresh seed in Arizona." It is quite certain that no botanist is known to have seen an indigenous tree. Seed collectors, however, are more fortunate, and are able to supply abundantly the market with *W. robusta* seed, which has no apparent difference from that of the common Desert Palm, except its higher price. The published characters of the proposed species show no important points of difference from the better known one, and, indeed, are hardly sufficient for more than a garden variety. May not the seed from which the original plants were raised have been gathered from a *W. filifera* having individual peculiarities that impressed upon its progeny the minor characteristics by which they seem to differ from the ordinary form? Greater variations are procured by seed selection by cultivators, and among plants growing wild marked individual differences are not uncommon. At best this species is a very obscure one, and it is to be hoped that more light may be thrown upon its true character.—G. B. PARISH, *San Bernardino, Cal.* (in *American Garden*).

STRAWBERRIES.

IN 1888 we planted a few runners of Noble obtained from Mr. Laxton, and in 1889 finding them very promising we took a large quantity of runners, striking them in pots, and planting them out in rows 18 inches apart, three plants in each stool.

We are now picking Strawberries off the 1889 plants, they having surpassed all the others by ten days at least, as we sold our Strawberries off them on the 7th June, good in colour, fine flavour, and so large in size that in the first punnet we sold we had ten berries that made half pound.

We are on a dry limestone soil, and have derived much benefit from the late dropping weather, and shall now have a very heavy crop of Strawberries, more particularly on Noble and Captain.

We found that the 1889 plants of Noble have the earliest and largest berries, but the 1888 plants will be the heaviest croppers, as many of them will yield up to 2 lbs. each. Sir Joseph Paxton, Vicomtesse Heri-

cart, and King of the Earlies do well here, but Noble has surpassed them all for size, quality, and early maturity in the open air.

We root our runners in thumb pots, we never dig between Strawberries, and we mulch heavily with decayed manure in February, three golden rules for the Strawberry grower.—D. A. MILWARD, *Lavestown, Kilkenny*.

THE WILD FRUITS OF NEWFOUNDLAND AND LABRADOR.

THE following list by the Rev. Arthur C. Waghorne of New Harbor, Newfoundland, has been sent to us for publication, and will probably interest some of our readers :—

The Buttercup or Ranunculus family (Ranunculaceæ).—The only one of this order yielding us berries is the Red Baneberry or Cohosh (*Actæa spicata*). It is known in England as the Herb Christopher. Our form is no doubt the variety *rubra*. It is a plant about 2 feet high, with a cluster of white flowers and red berries.

The Berberry or Barberry family (Berberidaceæ) gives us the Common Berberry (*Berberis vulgaris*). It is not a true native, but introduced from the Old Country. It has scarlet, acid berries, and yellow drooping flowers. It is far more frequent in England than here.

The Rose (*Rosa*) family (Rosaceæ) is a large and important one. Taking first the genus *Rubus* we have the Raspberries and the Blackberries. Among the former is found our well-known Bakeapple (*Rubus chamæmorus*), common in the high elevations of Great Britain, and there called the Mountain Bramble or Cloudberry; and of the true Raspberries we have in great abundance the wild Red Raspberry of America (*R. strigosus*), which much resembles the common English Raspberry (*R. Idæus*); this is also said to be found here, but the American Raspberry has been mistaken for it, and the Black Raspberry or Thimbleberry (*R. occidentalis*), which is rare. Then there are two species of dwarf Raspberries, the Arctic Bramble (*R. arcticus*), with a variety called *grandiflorus*, found on the Labrador, and our common Dewberry, Plumboy, or Swampberry (*R. triflorus*); this is also called *R. saxatilis*, and hence has been confused with another plant of the same name—the Stone Bramble—which does not appear to be found on this side of the Atlantic. Then amongst the Blackberries we have the High Bramble (*R. villosus*), and some say there is also its English kinsman, the wild Bramble (*R. fruticosus*); but here again the American plant has been taken for the English. These are not found in any quantity, and but seldom mature their fruit. I hear, however, that about Burin and further west the ripened fruit is sometimes fairly abundant. This Bramble has also two varieties in this country, viz, the *Fronosus* and the *Humifusus*. Our Low or Dwarf Blackberries are the Bristly or Running Blackberry (*R. hispida* or *sempervirens*), and the Low Blackberry, or Northern Dewberry (*R. canadensis*). The *Fragaria* or Strawberry genus gives us our two species of Strawberries, which are found plentifully in some places—the English Wood or Alpine Strawberry (*F. vesca*) and the Scarlet or Wild Strawberry (*F. virginiana*); the former is very common in England. The *Prunus* or Cherry and Plum genus.—To this family we are indebted for four species of Cherries—the wild red Cherry (*Prunus pennsylvanica*), the wild black Cherry (*P. serotina*), the dwarf or Sand Cherry (*P. pumila*), and the Choke Cherry (*P. virginiana*). The first two are of larger growth; the last two are shrubs or small trees. The *Cratægus* or White Thorn genus, as far as we know at present, is only represented by the scarlet fruited Thorn (*C. coccinea*). The *Amelanchier* or Juneberry genus gives us, I believe, our winter or wild Pear, the Shadberry or Juneberry of America (*A. canadensis*). The variety *oligocarpa* is also found here.

The *Pyrus* or Pear and Apple genus includes our low wild Pear or Chokeberry (*P. arbutifolia*, with variety *melanocarpa*) and the American Mountain Ash (*P. americana*). The latter is commonly called here the Dogberry or Dogwoodberry; but this is properly quite another tree, viz., the wild Cornel of England (*Cornus sanguinea*). A variety of the American Mountain Ash is also found in Newfoundland, which has smaller berries; this is the *P. microcarpa*, and may be our Catberry; more than one of our berries, however, bears this name. The English Mountain Ash (*P. Aucuparia*) has been said to exist here, but the American Mountain Ash has been mistaken for it. The *Rosa* or Rose genus gives us in Newfoundland, it would seem, at least four species and two varieties. They are the Swamp or Carolina Rose (*Rosa carolina*), the shining or dwarf wild Rose (*R. lucida*), with its variety *parviflora*, the early, bland, or Hudson's Bay Rose (*R. blanda*) with the variety *setigera*, and the Shining or Low wild Rose (*R. nitida*). The last named is apparently placed by Dr. Gray as a variety merely of *Rosa lucida*. On the authority of Professor Macoun it is raised into a distinct species.

The Saxifrage (*Saxifraga*) family (Saxifragaceæ).—The only division of this family with which we are concerned is the Ribes or Currant Gooseberry. It seems that we can only speak with certainty of there being three kinds of Gooseberries and two of Currants here; others have been mentioned, but these require examination. The three Gooseberries are the prickly Gooseberry or Thornberry (*Ribes cynosbati*), the small Smooth Gooseberry (*R. oxycanthoides* or *hirtellum*), and the small Swamp Gooseberry (*R. lacustre*). The Currants are the Red Currant (*R. rubrum*), and the Mountain or Fœtid Currant (*R. prostratum*). A White Currant is also reported as existing here; but Mr. Howley, of our Geological Survey office, assures me he never met with it. Of all these the Red Currant is the only one found wild in England. Professor Macoun thinks we have probably the Black Currant (*R. floridum*), and it has just been reported as found in Bonavista Bay.

The *Aralia* or Ginseng family (Araliaceæ) has only the *Aralia* or Ginseng or Wild Sarsaparilla which gives us the black or dark-purple berries of three kinds of *Aralia*—the Spikenard or Pettymorrel (*A. racemosa*), the dwarf or wild Elder or bristly Sarsaparilla (*A. hispida*), and the wild Sarsaparilla (*A. nudicaulis*).

The *Cornus* or Cornel or Dogwood family (Cornaceæ).—This genus appears to have eight representatives in Newfoundland, the best known of which is the Crackerberry—the Bunchberry or scarlet Stoneberry of America (*Cornus canadensis*). The other herbaceous member of this family is the dwarf or Lapland Cornel (*C. suecica*); this is frequent in England, and is much like the former. All our other Cornels are unknown there I believe. These are the round-leaved Cornel (*C. circinata*), the silky Cornel or Kinnikinnik (*C. cericea*), the panicked Cornel (*C. paniculata*), the alternate-leaved Cornel (*C. alternifolia*), the stiff Cornel (*C. stricta*), and the red osier Dogwood (*C. stolonifera*). Our White-rod and Red-rod are, I believe, among these, the latter being probably the Red osier Dogwood.

(To be continued.)

THE NAMES OF PLANTS.

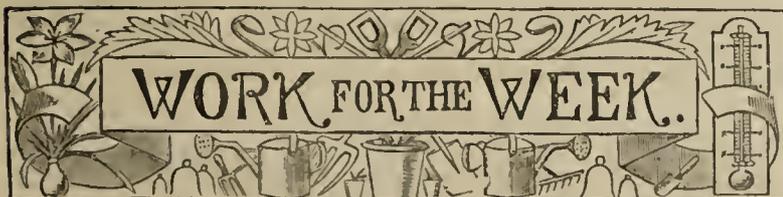
A WRITER in one of the metropolitan daily papers discourses in the following terms upon a subject introduced in this journal in a paragraph of Notes and Gleanings ;—

"Protests are constantly being raised against the pedantry of specialists. When the rather overrated volume of discussions on theological problems called 'Essays and Reviews' was published, its authors deliberately stated their opinion that religion suffered from being overlaid with a number of technical terms to denote certain doctrines. Dr. Whewell of Cambridge ridiculed these objections, and humorously observed that science would be no gainer if the 'impenetrability of matter' were to be rechristened as the 'unthroughableness of stuff.' Yet the world sympathises to a very great extent with the plea for greater simplicity of nomenclature, especially in the sciences. Could not the learned interpreters of Nature's mysteries make their learning a little more palatable to the popular taste without sacrificing the objects with which their curious terms have been created? Nature being a beautiful thing, it is altogether appropriate that we should not be disgusted at the threshold of the natural sciences by any unnecessary obstacles placed in our paths. The high priests of science ought, in fact, to understand that their subjects must be approached in the spirit of the poet as well as in that of the discoverer. As a matter of fact, we leave the naming of some of the most lovely flowers and plants in botany, and the most marvellous organic mechanism in anatomy, to any chance pedant who has about as much idea of the artistic charm of Nature as a lawyer's clerk possesses of the grandeur of the principles of English law. It is satisfactory to find an echo of the protests against scientific pedantry often made in this country wafted back to us from India. The superintendent of the Victoria Gardens at Bombay, Mr. Carstensen, is convinced that the reason why English people take so much less interest in the study of botany than do Germans or Scandinavians is to be found in the extraordinary compound classical names of plants and their varieties which are inserted in British text books of the science. He points out that in Germany and Denmark writers on botanical subjects employ the names of the mother tongue, or other names which can easily be translated into it. He sees no reason why 'flower-plants' should be called 'phanerogams,' or why 'cryptogams' should not be known in future as, what they are, 'spore-plants.' This view of a science obscured by Dryasdust Professors is certainly refreshing. Mr. Carstensen is a bold man, for he proposes that the Botanical Committee of the Bombay Natural History Society should revise the existing terminology, and substitute English names for barbarous Greek and Latin compounds which are unnecessary and unintelligible.

"There are, of course, arguments in favour of the 'Latinising' plan which has been accepted in the botanical world. A single Latin word frequently puts in a compact shape a meaning which it would require several English words to express. What Mr. Lewis Carroll called 'portmanteau words,' because they hold so much, abound in botany. Then scientific enthusiasts are advocates of a new kind of 'International,' and argue that the language of science should be one not confined to any particular country, but capable of being understood by the learned in every land. To use a modern language, even French, might excite jealousies; so a dead language is chosen, and one which has the indubitable advantages of Latin in respect of lucidity and compactness. These arguments would have much more force if the text books were really consistent; but they are not. We find a mixed jargon of Latin, Greek, and English, as the recognised language of botanical experts in this country. For instance, we read in botanical manuals of a branch of a Lime tree, 'with four leaves arranged in a distichous manner;' and 'the segments of the leaf of Aconite' are described as 'cuneate, and each of them is cleft and toothed at the apex.' Put into ordinary English, 'cuneate' simply means 'wedge-shaped,' and 'apex' means 'top;' but, if we use the Latinised words 'cuneate' and 'apex,' why should we relapse into English in 'cleft' and 'toothed?' The leaf of the Aconite plant has, as botanists know, a curious resemblance to the claw of a bird. It has, therefore, been christened 'pedate;' but hundreds of students may have learnt that word by heart without understanding in the least the peculiar characteristic to which it is meant to call attention. These words, however, are comparatively simple. But what are we to think of the barbarians who have disguised the

Sweet William under the title of 'Dianthus barbatus,' or the Canterbury Bell as 'Campanula medium calycanthea?' The amateur gardener is frequently not profoundly versed in the classical tongues, or, if he once knew them, he may very likely have forgotten them in the pursuits of active life, where dead languages are not much wanted. His zeal for sowing and planting receives its first check when he discovers the difficulty which attends his attempts to make out what particular flower the florists' catalogue are describing. Snapdragons and Sweet Peas he knows perfectly well, and probably desires to see reproduced in his own plot of land; but he is naturally unable to recognise those two popular favourites under the aliases respectively of 'Antirrhinum majus' and 'Lathyrus odoratus.' In this way a positive injury is done to science. People do not care to do their flower gardening with a Latin dictionary on one side of them and a Greek lexicon on the other. The consequence is that science is voted 'beastly' by males and 'horrid' by women, on the strength of the very repellent terminology with which it has chosen to surround itself. It adopts the tactics of the Nettle—we beg pardon, the 'Urtica urens'—and is only harmless to those persevering and audacious students who grasp it firmly, and are not frightened away by its forbidding bristles. It would be rather interesting to have each flower mentioned in Tenneyson's catalogue of those which adorned the 'garden of Roses' in 'Maud' changed into its proper scientific equivalent. The fearful 'hash'—no milder word can be used—which would result might lead the botanist to repentance, and suggest to him that if he desires the popularisation of science he must consent to invent, and then adopt, a terminology at once simple, easily intelligible, and harmonious in sound.

"Our museums are frequently places where unintelligibility has been elevated into a fine art. At the very threshold the rustic visitor is daunted by the announcement that he can obtain at the gate a 'synopsis' of the collection, that is to say a catalogue, or better still, a list of the contents. 'What's a synopsis?' he asks of the janitor, only to receive the unsatisfactory reply, 'a shillin'.' The placards attached to interesting objects ought, of course, to describe those objects in the very simplest language obtainable. If it is necessary to be technical at such places, which are intended for the edification of the general unlettered public as well as of students, then the scientific terms should be added after the explanation in the Queen's English. This rule is often utterly neglected, with the result that visitors stare at the fossils and minerals and stuffed birds, and so on, without carrying away with them any impression beyond a depressing sense of their own ignorance. Such is hardly the object for which museums exist. There may be some excuse in text books for the retention of technical language, for these are supposed to be pored over by the light of the midnight oil; but where the 'average man' may be expected as a visitor the explanations should be suited to the average intelligence. Botany is not by any means the only science which sins in this way; but its offence is the most glaring, because the objects with which it deals are so beautiful, and its terminology is so exceptionally atrocious. 'Monocotyledonous' is a term which, like 'Popocatepetl,' might reasonably be employed in a game where words have to be said rapidly several times over under pain of a forfeit. It is difficult also to derive much mental comfort from such a sentence as the following, a mere sample of the crimes of professed botanists: 'The cells of the medullary rays, stretching between the fibro-vascular bundles and continuous with their cambium cells, become converted into secondary meristem, and then an interfascicular cambium is formed, which eventually coalesces with the cambium rings of the fibro-vascular bundles.' Lives there the man with soul so dead, who would not shut his book with a bang or precipitate it into the fire on having such a literary outrage perpetrated in his presence? What good purpose is served by calling the inner bark 'endophlœum,' and outer bark 'epiphlœum?' We get one word instead of two, but we have a conundrum thrown in. 'Many-ribbed' is every whit as good and serviceable a word as 'multicostate;' and against the whole tribe of terms, such as 'eleutherossepalous,' 'antherine dehiscence,' 'reduplicative aestivation,' 'gymnospermous,' and the like, it is necessary to declare war to the knife. We readily admit that certain pretty Latin and Greek names have become naturalised into the language, and should be retained. Nobody wishes to rechristen the Primula, the Convolvulus, the Rhododendron, or the Polyanthus. Nevertheless there is something distinctly unsatisfactory in the state of hotany when an educated Englishman going to a flower show prefers to hold his tongue rather than venture on the fearful compound titles which any gardener can rattle off without the slightest comprehension. Gardeners are frequently pensive and sad-looking men. Has their natural gaiety perished under the ravages of scientific terminology?"



FRUIT FORCING.

PINES.—*Fruit Ripening.*—When the fruit commences colouring syringing should cease, but the supply of water at the roots must be continued as before when necessary and to improve the colour and

quality of the fruit ventilate liberally, but do not allow the temperature to fall below 80° in the daytime, gradually diminishing the moisture in the house, maintaining a night temperature of 70° to 75°. Plants of Queens and Providence started into fruit last February will ripen this month, whilst Smooth Cayennes and Charlotte Rothschild will require about a month longer to finish properly. Under the same conditions they furnish a good successional supply, which may be still further extended by removing some of the fruiting plants to a cool airy place. Continue the same conditions at the roots as regards bottom heat, viz., a temperature of 80° to 90°.

Successional Plants.—Fire heat will not be necessary much longer, as the temperature, by the assistance of the heated beds in which the plants are plunged, rarely falls below 65° at this season and for the next few weeks, and this naturally obtained temperature is more suitable for the development of the plants than a higher one. Recently potted plants make growth quickly. Strict attention should be given to ventilation to prevent attenuated growth, therefore admit air at 75° to 80°, increasing it until 85° is reached, and above that ventilate fully, diminishing it in the afternoon, closing at a temperature of 80°, affording a light sprinkling daily when bright weather prevails.

Suckers.—From those on the early fruiting plants a sufficient number should be selected to meet the demand, and if started at once the plants resulting will be suitable for fruiting from this time forward another season, and will be supplementary to those started in March, their requirements being identical, only shading must be more effectual.

VINES.—*Early Vines Cleared of their Crops.*—Syringe the Vines occasionally to keep the foliage clean; afford water to render the soil moist, a mulching of not rich material, keeping the surface from cracking, and the surface being moist will prevent the roots going down in quest of moisture. Allow a moderate extension of the laterals, and admit air freely above 60°. There is no fear of the wood not ripening, and the difficulty is to prevent the premature ripening and fall of the foliage. If there have been red spider or thrips the foliage must be thoroughly cleansed by the prompt application of an insecticide.

Ripe Grapes.—These will be the better for slight shade from powerful sun, some pilchard or a double thickness of herring nets drawn over the roof lights will mostly be sufficient shade, and a good spread of foliage will assist Black Hamburgs in keeping colour. Moderate air moisture will not injure the Grapes if accompanied by free ventilation. Keep laterals fairly under, but a little extension will assist in the retention of the principal leaves, and upon their continuance in health depends the maturity of the wood for next year's crop.

Grapes Ripening.—Afford a circulation of air constantly, with sufficient heat in the pipes to maintain a night temperature of 65°, and 70° to 75° by day with 80° to 85° or 90° through the day from sun heat. Avoid a dry atmosphere, damping occasionally, and do not allow the border to become dry, but if necessary give a thorough supply of water in the early part of a fine day, so as to allow of the superfluous moisture being evaporated before closing time. It is not a moderately moist atmosphere which causes Grapes to crack, but the deposition of moisture on the skins.

Scalding.—A gentle warmth in the pipes and a little ventilation constantly with an increase by the time the sun begins to act on the house in the morning and somewhat free circulation by day makes all the difference between scalding and non-scalding. Occasionally Muscats are scalded when the berries are exposed to the direct rays of the sun in the most carefully ventilated structure and chiefly at the higher parts of the house and furthest from the hot-water pipes, which points in the direction of the absorption of moisture from the air if not condensation of moisture during the night being the cause of the mischief, which is clearly not an ailment but a cultural defect, an excess of watery matter over the power of assimilation, and subsequent heating or scalding. In the northern parts of the country the sun's rays acting through large panes of glass are so powerful that scorching sometimes takes place under the most advantageous conditions of heat and ventilation, so that it becomes necessary when the Grapes have stoned and about changing colour to afford a slight shade as that of a herring net over the roof lights in order to subdue the fierce direct rays of the sun, which not only insures the more satisfactory swelling of the berries but their immunity, other conditions being favourable, from scalding, and the greater regularity of the ripening. Black Hamburgs seem to colour best beneath a good spread of foliage, but all require thorough exposure of the foliage to air and light.

Young Vines in Pots.—When from 6 to 8 feet long pinch out the point of the lead or cane and stop the laterals and sub-laterals at one joint as produced. This applies to Vines intended for fruiting next season. Those intended for planting may be allowed to make all the lateral growth they can, and be cut back to two or three eyes at planting time. Secure as much stored up matter in the fruiter as possible by judicious feeding and the exposure of the foliage to light, keeping it cleanly and not interfered with in any way by laterals.

Late Grapes.—These must be thinned directly they are large enough; the berries swelling so rapidly at this season that they soon become too large to be thinned expeditiously and properly. Besides, when the thinning is delayed the fruit suffers proportionately in ultimate size and perfection. The laterals must not be allowed to interfere with the principal leaves; but where there is space to allow of the growths being fully exposed to light they may be allowed to extend, not otherwise, overcrowding and overcropping being the cause of many failures. Remove all superfluous, deformed, or small bunches. Crop

lightly, which means size, quality, and high finish, bulk meaning small fruit, bad colour, poor quality, often shanking, and always non-keeping. Water thoroughly when necessary, and always to moisten the soil through to the drainage, one good watering being worth many dribbles. Afford liquid manure, as feeding seems necessary to the health and vigour of the Vines.

CUCUMBERS.—In houses fire heat will only be necessary to prevent the temperature falling below 65° at night and to insure 70° to 75° by day artificially. Attend well to stopping the shoots, removing bad leaves, well thinning the old growths, and watering with weak liquid manure about twice a week. To encourage surface roots sprinkle the bed with fresh horse manure once or twice a week, and occasionally with a little soot, both of which will be beneficial in supplying ammonia to the atmosphere as well as aliment to the roots.

Utilising Empty Houses.—Houses cleared of pot Vines, Strawberries in pots, bedding plants, &c., may be usefully appropriated to Cucumbers. They may be grown in 12-inch pots or in boxes of 15 inches depth and 18 inches to 2 feet square. A wood or other trellis may be improvised at 15 inches from the glass. No fire heat will be necessary, the house being closed between 3 and 4 P.M., or earlier according to the sun or weather being clear or overcast, syringing then, the floors and every available surface being kept damp so as to secure a good moisture through the day, but do not syringe in the morning, it often being the cause of great mischief to the foliage. Admit air at 75°, and allow the temperature to rise to 85° or 90° with sun, and close between 80° and 85°, and if the temperature rise afterwards to 90° or 95° all the better. Train with a single stem to the trellis, rubbing off all laterals to that height, then allow them to grow; pinch the leader after it has grown two-thirds across the trellis. The laterals must be stopped one or two joints beyond the show of fruit.

Pits and Frames.—Water the plants about 4 P.M., closing then or earlier according to the weather, but it is not safe to close so early as to raise the temperature above 90° or 95°. Liquid manure should be given occasionally, but it is not advisable to give it over the foliage, nor afford it too frequently. Keep the growths fairly thin, thinning out old growths and encouraging others in their place, so as to keep up a succession of bearing wood. Stop one or two joints beyond the fruit. Avoid overcrowding, and especially overcropping, and allowing the fruit to remain on the plants a day longer than can be helped.

MELONS.—Plants that were raised some time ago should be planted out at once. They will set freely in the hot days that usually prevail in July, and afford good fruit in late August or early September. In well-heated light houses there will be no difficulty in maintaining a supply of fairly flavoured fruit through October or November from sowing up to the third or fourth week in July.

Pits and Frames.—A last sowing should be made at once for those heated by fermenting material, and it is advisable to make up the beds at the same time as the seed is sown, which should be in 4-inch pots about half filled with soil placed in a house or frame. One or two seeds may be sown in each pot duly covered with soil, supplying soil around the stem as the plants advance, but not higher than half an inch from the seed leaves. When the bed is ready turn the plants out of the pots, place one in the centre of each light, planting within half an inch of the seed leaves with the soil inclining from the stem, give a good watering, and shade from bright sun. Pinch out the point of the leader at the second rough leaf, which will induce side shoots, reduce these to four, take two to the front and two to the back of the frame or pit, rubbing off the laterals to within 6 or 9 inches of the stem all around, and every other lateral upon the primary shoots, stopping those at 1 foot from the sides of the frame. The plants will be showing and setting fruit in plenty early in August, and they will ripen in late September. All the stopping and disbudding must be done whilst the growths are small, for large reductions only tend to a stagnation of the sap or grossness in the parts retained, and are unfavourable to the setting of the crop.

Second Crops in Frames.—Cut back Melons which have fruited, remove a little of the surface soil and give fresh, also a good watering. If due regard has been paid to keeping the soil moist for the first crop, and shoots retained in advance of the cutting back from near the base of the fruited Vines, fresh growth will be quickly made, and fruits will speedily set and swell; in fact, fruits may be had set and swelling before the first crop is cut, growths having been encouraged from near the collar of the plants. The plants, however, must not be kept so dry at the roots during the growth and ripening of the first crop as to completely exhaust them, and in many instances to the extent of spoiling the fruit, as it ripens prematurely, consequently is not solid, and the flavour is indifferent. Proper supplies of water are necessary when the fruit is swelling, and enough should be given when ripening to preserve the foliage in good condition, there being no comparison of fruit ripened with foliage and that which has none or enfeebled to aid it during the ripening process.

Setting Melons in Frames.—In the warmer months the plants grow freely, particularly in dull periods, and there is difficulty in setting the fruit. There is a crowding of the foliage, the plants growing too freely, the atmosphere is too moist, and the temperature too low. Anything in the way of crowding is fatal to a good set and the satisfactory swelling of the fruit. The shoots should be kept rather thin by removing every alternate lateral whilst quite small, for to remove them when large very often induces gumming and canker. The laterals retained will for the most part show fruit at the second or third joint; if not, stop them at the second joint, and the sub-laterals

will show fruit freely, when water should be given sparingly, but if necessary, pour it between the shoots so as not to wet the surface of the bed to any great extent. Place hot dung against the sides of the frame, or grass mowings will do, with a little litter over the grass. This will raise a gentle heat, admitting of a little ventilation being left on constantly day and night, which prevents the deposition of moisture on the blossom, which is fatal to fructification. Fertilise the flowers when fully expanded. Admit air freely if weather permit, increasing the ventilation at 70°, allowing it to rise to 80° or 85°, or 90°, at which keep it through the day, closing at 80°, except the small portion before alluded to. When the fruit is set, two to four on a plant and the size of a bantam's egg, commence watering by sprinkling the foliage at closing time, always keeping the water from the neck or collar of the plants, and besides the sprinkling give a good watering twice a week in hot weather, once a week will be ample in dull weather. Commence ventilating at 75°, allow the heat to rise to 85° or 90°, close by or before the sun's power is much diminished or when the temperature recedes to 80°, or between 4 and 5 P.M., with a gentle damping, being careful to avoid the stems. The temperature will run up 10° or more, which will be advantageous to the swelling the fruit. When the fruit is advanced for ripening keep the bed well lined with hot dung or grass mowings, and admit air freely, omitting the sprinklings, watering if necessary through the spout of the pot instead of through a rose. Cut the fruit a day or two after it commences giving off its aroma, placing it in a dry room, and in two or three days it will be in perfection, which is when the ripening colour pervades every part of the fruit, after which flavour is lost rapidly, and in a few days it is entirely gone.

KITCHEN GARDEN.

STIMULATING VEGETABLES.—These may do more harm than good if applied too soon, and incite sappy growth. Many advancing crops, such as Cauliflower, Peas, Beans, Tomatoes, Cucumbers, Onions, Carrots, &c., may now be usefully assisted with liquid manure. Surface dressings of artificial manure are of little use during hot dry weather; with liquid it is quite different. The water alone is beneficial, and the manure in it reaches the roots at once, and is used forthwith. The drainings from a manure heap are generally good, but not always obtainable in dry weather, but a quantity of horse, cow, or pig manure placed into a tank filled with water, allowed to remain there for a few days may be given to vegetable crops with advantage. A mere surface watering is useless; a thorough soaking is the only application from which the best results can be obtained.

LATE PEAS.—Many late crops do not prove so useful as intended through gaining maturity too early. Peas are frequently amongst these. The seed is sown too soon, and the pods are ready for use before the end of the season, or the time which is usually considered late. There are very few Peas in gardens or markets after September, and yet by sowing late there might be many in October. The point to aim at is to sow in time to have them in full bloom about the last week in September. Late Peas require about fourteen weeks to gain maturity. They should not be treated as a chance crop to be sown anywhere, but should have a position in the garden where they will be under the influence of the sun when the pods are swelling in October. Dig the soil deeply, and use manure liberally, but not in lumps, because these often become very dry in hot weather. We sow our Peas at this season 4 inches deep for receiving uniformity of moisture.

KIDNEY BEANS.—There is often a deficiency of tender young Beans late in autumn, the old rows having been bearing so long that their pods soon become tough. It is a bad plan to depend on the summer bearing rows for the latest supply, and seed sown towards the end of June produces plants that begin fruiting in September, and continue till cut off by frost, which may be November.

CABBAGE STUMPS.—Many of the spring Cabbage have now been cut, they have been a good crop this season. The stumps still remain in the ground, and by September or October they will yield a number of acceptable heads, and after these are cut further growth will furnish greens all the winter, and in March and April next year these Cabbage sprouts may prove almost the only greens available. The dead leaves should be cleaned from the stems now, and the ground cleared by weeding and hoeing.

SWEDISH TURNIPS.—These are extremely useful for the winter and spring supply. They are not always grown in gardens. Some consider them coarse, but are very hardy, and although yellow fleshed, much better in flavour than many of the white fleshed sorts. We sow a large breadth of them every June, and find them most acceptable from December onwards. They should be generally sown at this time.

WEEDS.—These are now growing apace, but few of them have seeded as yet, and if they are destroyed before the seed matures the garden will remain clean during the autumn. When the weather is dry the Dutch hoe is used, but in damp weather we resort to hand-weeding, and to-day there is not a weed to be seen in our kitchen garden.

PLANT HOUSES.

Crotoms.—Good heads that are well rooted in 3-inch pots may now be placed into 6 and 7-inch pots. Some of the smaller growing kinds will succeed in 5-inch pots. These do well in fibry loam, one-seventh of decayed manure and sand; a little soot may also be incorporated with the soil. After potting arrange them close to the glass, where they will enjoy abundance of light. Moderate shade for an hour or two during the hottest part of the day will be beneficial, and protect highly

coloured varieties from injury by exposure to the sun. To grow Crotons well and develop the brilliant colours their foliage is capable of assuming plenty of light is essential. They are certain to be green or only poorly coloured if much shaded. Plants from which heads were taken will have produced good cuttings, which should be inserted singly in small pots. These, in consequence of small foliage at the base, will not be suitable for vases as single specimens, but they will produce good heads with bold foliage, and prove suitable for many forms of decoration. Plants that are growing too tall may have good sized heads removed and inserted in 3-inch pots. The heads should be taken off where the wood is not too firm, and then they can be rooted in a close frame or under handlights without losing a single leaf.

Dracaenas.—Where plants were cut up as directed and the stems placed in pans the young plants will be ready for potting singly in 3-inch pots. These will soon start into vigorous growth if shaded from the sun, and kept close and in a moist atmosphere. If gentle bottom heat can be provided all the better. Stems may still be inserted as plants become bare and useless for decoration. Those that have good heads, but are bare at the base, may have them removed, inserted in bottles of water, and stood in brisk heat, or be taken off and inserted in sandy soil in small pots. These should be plunged and placed under handlights. Fine heads may be mossed just below good bold leaves, and cut partially through to induce them to form roots. There is no occasion to practise this method with *D. Lindenii*, *D. gracilis*, or *D. Goldiciana*; these root freely enough without even the aid of handlights.

Gardenias.—Plants that have been cut back and have broken into growth may be placed into larger pots. These do well in equal portions of loam and peat with the addition of sand, or they may be grown satisfactorily in good loam and sand. Where peat is scarce or of inferior quality use one-third of leaf mould. Repot young plants from time to time as they need more root room, and grow them fully exposed to the sun. Once they are growing freely do not keep them too close, but admit air daily to induce firm well matured growth.

Poinsettias.—As these become established in 4 or 5-inch pots do not keep them too close and warm or they will run up quickly. Gradually lower the temperature until they can be placed in cold frames without checking them. In this position they will grow slowly, but their growth will be sturdy and in due time capable of yielding fine bracts. Cuttings may still be rooted by inserting them in small pots and placing them under handlights in a heated structure. Before inserting the cuttings place the stove plants for a few days or a week in a lower temperature. Water thoroughly after insertion, and shade the cuttings from the sun until they are rooted.

Gloxinias.—Young plants established in small pots from seed sown this year may be placed into larger ones if they need it. Do not grow these too warm; they succeed much better under cooler treatment than the stove affords. They need shading from the bright rays of the sun, and if the structure in which they are to be grown is kept moderately close little artificial heat will be needed. It is not wise to discontinue its use entirely, for a little warmth will be beneficial should the temperature externally fall low at night.

Achimenes.—Cuttings may still be rooted by inserting them in 5-inch pots. Fill the pots so that the plants can grow on together in them. They will root well in any close moist shady structure. Those that are established and growing freely may have air admitted to them more liberally, and should enjoy a lower temperature, in fact they will do capitally with Gloxinias.

Caladiums.—Do not grow these too warm or overshadow them, or they will run up weakly and not have strength to support their large foliage. When grown under the influence of a moderate amount of light and air they will stand up without staking, and can be moved about to any position. Where plants of argyrites are appreciated in small pots any that are growing too large may be carefully divided. Give these a close moist shaded position until root action and growth commence.

Allamandas.—If these are growing where the atmosphere is rather dry, syringe them freely twice a day, or they may become a prey to yellow thrips. This establishes itself in the points of the shoots, and if not destroyed it will quickly injure them. The two best methods is to dip the shoots in a solution of tobacco water, or dust them with tobacco powder. These thrips dislike water, and if the syringe is used thoroughly will give very little trouble. Plants that have filled their pots with roots and are flowering well may be top-dressed with equal portions of loam and manure. Feed also with weak stimulants every time water is needed. Any shoots that are extending too far without showing flower may be cut back to where the wood is firm, which will induce them to flower.

THE BEE-KEEPER.

NOTES ON BEES.

THE WEATHER.

DURING the greater part of May and June the weather has been unfavourable for bees, and, except in some parts of the West High-

lands, appears to be general. The highest temperature for June till the 13th was 78°, on the 10th; and the lowest 31°, on the 7th. Nothing is injured by frost, but the bees have been kept much within doors, and all swarms have had to be fed, and some unswarmed ones have deposed their queen and thrown out their surplus queens. The barometer is now high, and the aspect of the sky indicates finer weather, and as Clover is coming rapidly there will be no lack of bees to carry in the honey abundantly, and in spite of all we can do to prevent them swarms will come off if the weather is favourable. On the first indication of honey being gathered in quantity we shall super, but not till then, the average time of supering with us being about 18th June, but the season is earlier this year.

SUPERING TO PREVENT SWARMING.

This is frequently advised, but such advice is unwise in the extreme, because in most cases queen excluder zinc has to be placed between the already too small brood nest and supers. It is the want of sufficient breeding space, or an exhausted queen (and they are numerous this year), that causes bees to swarm. Often have I mentioned this, and the accompanying letter from "J. W." corroborates my opinion:—

"Do you think that the B.B.A. standard size of frame is too small? I am sure that it is, and that a frame 10 inches deep in place of 8 inches would be more suitable, and there would be less fear of swarming. If you give a queen enough breeding space she will not throw off. I notice in the 'Bee Journal,' that the Editor cautions his readers to give the bees plenty of room in plenty of time to prevent swarming (by placing supers on, &c.). They do not seem to know that it is not the bees that require room; it is the mother that needs it, and what does it matter to give her only nine or ten frames with perforated zinc on top, and any amount of super room? If she had say ten bars the standard length, but 10 inches deep, do you think this would prevent swarming? I am thinking of selling off the boxes I have and adopting this size for my own use. Bees here are in good trim, but the weather is unfavourable, and the Clover is now making an appearance.—J. W."

Certain members of the B.B.K.A. have frequently boasted of what expense they have been at in bringing the bee and the cottager together, and to understand each other, as well as the great success of their undertakings, but immediately following their intimations comes the appeal to the public for more money, with the significant hint that their successful undertakings will be a failure unless their request is responded to. Bee-keeping is spread in Scotland by philanthropic gentlemen at their own expense, assisting cottagers with bees as well as hives, and a pound or two is better and more economically spent than when it is entrusted to any Bee Association.

SWARMING.

This and the deposition of queens will, I am sure, be more frequent this year than many may suppose, and I feel justified in giving the warning note, and tell the reason why. Hives were extra well stocked with bees during autumn, breeding began at its usual time, but to a far greater extent than is usually the case. The weather since March came in has been most destructive on bee life, hence queens are either entirely worn out or partly so, and are unable to keep up the laying at the season the bees demand it. When this occurs royal cells are raised, and the old queen (whether the hive is crowded or not) comes away with a swarm or is deposed. Under circumstances as above many first swarms will come off having one or many young queens; if the latter, watch will have to be kept or the whole, or part of the swarm may leave the hive after the owner may think all is well. If the old queen survives, and comes with a swarm, being in a worn out condition, the bees will raise young ones, and the old queen will either be deposed or may come off with what is termed a virgin swarm. If the former, a young queen will issue with the swarm. Whichever may happen there will be a renewal of queens, and queenless hives or drone-producing queens may be expected.

The bee-keeper this year will have to give greater attention to see all is well before it is too late. The foregoing is no mere

surmise, but what is going on at present, and I have reason to fear many of the early after-swarms and stock queens will remain virgins. One gentleman wrote to me two weeks ago saying he had supered his best hives, but he was afraid the "early bird would not get the early worm." He was right. Hives that were weakish in the early spring have advanced steadily, and receiving little or no backset will prove the most satisfactory, and give no trouble beyond the ordinary necessary attention; but those that were forward two months since will act more or less as I have described, and is what I believe has given rise to the erroneous idea that Carniolian bees are more liable to swarming than other races are, which I have not experienced, although I have kept these bees for upwards of fourteen years, and had those who have made such statements waited until experience justified them they would have been written differently.

UNITING SWARMS.

"Your correspondent, 'Lanarkshire Bee-keeper,' recently said, under the above head, 'hive the second swarm in the third division.' This I do not quite understand. Would you kindly inform me if they are to be kept in this third division, and separate from the first swarm; and how is this accomplished?—J. D. L., *Northumberland*."

I do not see how it can be made clearer than at page 474, unless it be to impress more fully of the importance of preserving the laying queen until there is another laying one to take her place. By joining a first and second swarm together there is a risk in several ways of both queens being lost. The three divisions are rather large for an ordinary swarm for a time, and one division is large enough for a second unless it be an extra large swarm.

Keep the first and second swarms as separate hives, but near each other, so as to be convenient for after-manipulation, whether it be for next year or for late honey gathering. The great advantage of having the brood of two queens instead of one will now be obvious, as well as having hives suitable for building up to great strength. Of course, if you wish to increase your stock you will require to add more divisions instead of joining the swarms.

AN IMPORTANT QUESTION.

One of the greatest difficulties bee-keepers had to contend with was the clearing bees from supers. Only a few days before I announced the carbolicised papers in the *Journal of Horticulture* our contemporaries were publishing how bee-keepers were baffled in getting bees from supers before much of it was taken by the bees, and in some instances the supers were emptied, not a word was said about the acid until it appeared in these pages. I do not lose heart at seeing my contrivances patented and appropriated by others, and my writings plagiarised encourages me to go on.

THE AMERICANS.

Two weeks ago, by the same post that brought us the *Journal of Horticulture*, came gleanings for May 15th from America. The Americans are considered to be ahead of the times, but this number, like some of the preceding ones, had several articles in accordance with my ideas, and what has long since appeared in these pages. In addition to the tops of the hive, and its being brought to plans not unlike our own, that of placing the hives in twos or threes or more in clumps is receiving attention, and the article announcing the bulletin on foul brood is quite in keeping with my last article upon the subject. It is quite reassuring to find the Americans coming to our ways of managing their bees, whether we have helped them to it or not. They have this quality, they appear to give everything a fair trial before they encourage novices to adopt them. The foregoing is perhaps somewhat personal, but when it is taken into consideration that we have novices and beginners to initiate and instruct, it is but right to lay the facts before them, and while taking them into our confidence they will confide in us, and learn from what source the information flowed, and we will guide them to our best ability to success combined with economy. And that every gardener may be benefited by keeping bees is the wish of—A LANARKSHIRE BEE-KEEPER.



TO CORRESPONDENTS

All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Cattle Trespassing (R. M.).—Much will depend upon your respective rights to the stream, concerning which you give us no particulars. Endeavour to settle the matter amicably, but if a difficulty arises consult a solicitor.

Plants not Thriving (Geranium).—The structure you describe as having a south-east aspect, cemented all round, and the body glazed with rolled, and we presume ribbed, glass is not suitable for Pelargoniums and flowering plants generally. Palms, Ferns, green Dracænas, Aspidistras, and such like plants might flourish in it, but flowering plants could not be expected to continue satisfactory for any length of time. Such houses are a source of trouble to gardeners, and generally disappointing.

Thrips on Vines (J. H.).—As only two Vines are attacked we should not hesitate to sponge the leaves with a solution of softsoap and tobacco water, as the little time thus spent would be spent well in extirpating the destructive insects. They will soon spread to other Vines, but with a sharp eye and a piece of sponge they may be prevented from doing any material injury. Fumigating properly done will not injure the Grapes, but sponging is the safer and surer remedy, and we have seen it applied to all the Vines in houses much larger than yours.

Azaleas after Flowering (C. J. W.).—Retain the plants under glass until the growth is perfected and the buds formed, when they may be stood outdoors on a base impervious to worms. They will be all the better for a few weeks' sojourn outdoors, care being taken if they have been grown in a shaded house to afford a slight shade from bright sun until they become used to the exposure. They should be duly supplied with water, and be syringed in the evenings of hot days. From the beginning to the middle of July is about the time Azaleas are sufficiently advanced in growth and bud for placing outdoors. They should be housed in September, before the weather becomes very wet and cold.

Tomato Leaves Withering (R. C. N.).—The curling of the leaves is peculiar to some varieties. Premature withering may result from differing causes. If the roots get too dry now and then the lower leaves will turn yellow the sooner. Excessive wet, or too strong liquid manure, in impeding free root action, affect the foliage similarly. But it does not follow that you have erred in your management, at least seriously, because it is quite common for the lower leaves of Tomatoes in pots to collapse when good crops of fruit are swelling. Sprinkling the soil with chemical manures of the kinds advertised, and washing down their virtues in watering, is found a better practice by many cultivators than giving too much, or too strong, liquid manure. This often prevents the extension of surface roots, while top-dressings incite their production.

Bloated Onions (J. T. M.).—The Onions have the leaves and stems thickened, and will not form, if they survive, other than thick-necked bulbs. Sometimes the evil arises from imperfectly developed and matured seed; it may also result from seed having been kept too long, and though it may germinate the plants are tender and liable to collapse. We have also known sharp frost to occur at a critical time and rupture the tissues of the young plants and check the upward flow of sap, hence the bloated appearance of the stems and crippled leaves. Not unfrequently the plants so affected fall a prey to the grub or larvæ of the Onion fly (*Anthomyia phorbia ceparum*) which deposits its eggs on the enlarged leaves, and the larvæ find ready access into the stems from the softness of their parts. The plants, however, you have are not attacked by the grub, but the leaves have assumed the whitish grey bloom so characteristic of the Onion mildew (*Peronospora Schleideniana*) to which they may succumb. We should burn the affected plants and put the ground to more profitable use. Useful Onions may be had by transplanting, and surplus plants are often procurable at this period of the year.

Grapes Scalded (R. C. W.).—The Grapes are badly scalded. It is caused by moisture in the cuticle, the outer pellicle of the epidermis or skin of the berries being heated more rapidly than the interior or pulp, and the breakdown may be partial or total as the moisture pervades the cuticle. We have had Lady Downe's scald in the interior and upper part or shoulders of the bunches, whilst not a berry was affected on the lower part of the bunches or on the under side of the berries, indicating that it is due to excessive moisture preventing evaporation of the internal moisture through the cuticle to the surrounding atmosphere. It always occurs when the skin begins to thicken for the ripening process after stoning, when extra attention is necessary for preventing the

deposition of moisture on the berries. A little air along with a gentle warmth in the pipes at night, and by day, so as to permit of an early increase of the ventilation, will produce freedom from scald through the moisture in the cuticle being evaporated and the interior of the berries warmed corresponding with the surrounding air or before the sun acts powerfully upon the house. Direct exposure to the sun is not a necessity of scalding. It will prevail equally under a shaded or unshaded roof if the temperature fall so low at night as to gorge the berries with cold fluids, and as the air warms to condense external moisture on the berries, when it only needs so much heat of the atmosphere over that of the berries to cause them to scald. Admit a little air constantly, and maintain a gentle warmth in the pipes, with early and free ventilation by day, for a period of a fortnight or three weeks, when the skin will have become sufficiently hardened or thickened or contain so little moisture from the increased density of the fruit, as not to be liable to injury.

Summer Pruning Morello Cherry (H. M.).—The Morello Cherry should have as much of the young wood laid in as can be done without crowding the growths too much, to furnish the bearing wood of next season. These should be side shoots, well situated for laying-in. The foreright shoots, not well suited for laying-in, should be pinched or cut back to three leaves, not counting the small base leaves. These cut-back parts will form fruit buds, equally with the long shoots, for the crop of next year. Should other growths arise from the parts stopped pinch them at the first leaf, and so on throughout the season, keeping the young shoots secured, not too tightly, to the wall as they advance. If it be necessary to stop any of the shoots laid-in do so, and if they push other growths stop such at the first and every succeeding joint of growth. This will necessarily crowd the tree with bare shoots unless measures are taken to prevent it. As soon as the fruit is gathered we cut out as much of the wood that has borne it and can be spared, so as to leave room for the young shoots of the current year, bristling from end to end with fruit buds at about 3 inches apart. This will occasion the removal of some parts that would otherwise have borne fruit, but as there must necessarily be some sacrifice it must be in favour of the more fruitful and better cropping parts. Under this treatment the trees are kept well furnished with bearing wood, and bear full crops of the finest fruit.

Summer Pruning Espalier Apple Trees (Idem).—These should have all the leads or extensions trained in their full length when there is space, the side growths should be pinched or stopped at the third good leaf, and to one as succeeding growths are made. This will cause the base buds to develop and form spurs, unless the growth be exuberant, when the tree will push these as well as the upper buds, and the roots must then be pruned, so as to check for limiting the supply of sap, and so induce reciprocal action between the roots and branches. If the trees are young and free the growths may be allowed to make about five leaves, and then have the point taken out, which will prevent the base buds from starting into growth. The pruning must be in accordance with the condition of the trees—a point which correspondents in writing very often overlook, and, therefore, do not afford data for enabling precise replies to be given. If the tree or trees make much wood root-pruning is necessary, as no amount of summer pruning will induce fruitfulness; but summer pruning is a necessity of good culture, and in most cases it is better to close pinch some of the growths or to three leaves, and others to five or six, so as to make sure of at least some fruit buds; the longer growths appropriating the sap liberated by stopping other growths, and so preventing the pushing of the short stubby growths, and by the increased light afforded allowing them to form fruit buds. This often causes short stubby buds to form at the base of the shoots not closely pinched, and these develop another season into spurs with their ultimate bloom buds. Further pruning may be done in September, so as to give the foliage the fullest benefit of light and warmth, and to ensure maturation of the wood and the development of the buds. The first pinching may be done in June, and the second before the close of September, then very little for the knife in winter, and the less the better.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. (C. H.).—1, Iris Xiphium; 3, Iris levigata; 6, Iris florentina; 7, Iris pseudacorus. The others were too faded. (J. G.).—1, Ranunculus acronitifolius flore-pleno; 2, Polygonum Brunonis; 3, Hemerocallis flava; 4, Geranium pratense. (M. M. B.).—Philadelphus floribundus.

COVENT GARDEN MARKET.—JUNE 18TH.

A FAIR supply of outdoor Strawberries has reached us during the last few days, but show want of sun. Business has been steady with prices low, especially in Grapes.

FRUIT.

	s. d.	s. d.	s. d.
Apples, ½ sieve	2 0	to 6 0	
" Nova Scotia and			
" Canada, per barrel	18 0	25 0	
" Tasmanian, p. case	15 0	0 0	
Grapes, per lb.	1 6	3 0	
Lemons, case	10 0	15 0	
Melons, each	2 0	to 4 0	
Oranges, per 100	4 0	9 0	
Peaches, dozen	4 0	13 0	
Red Currants, per ½ sieve	0 0	0 0	
St. Michael Pines, each..	2 0	6 0	
Strawberries, per lb. ..	1 0	2 0	

VEGETABLES.

	s. d.	s. d.	s. d.	s. d.
Artichokes, dozen	0 0	to 0 0		
Asparagus, bundle	2 0	4 0		
Beans, Kidney, per lb. ..	1 6	0 0		
Beet, Red, dozen	1 0	0 0		
Brussels Sprouts, ½ sieve	0 0	0 0		
Cabbage, dozen	1 6	0 0		
Carrots, bunch	0 4	0 0		
Cauliflowers, dozen	2 0	4 0		
Celery, bundle	1 0	1 3		
Coleworts, doz. bunches	2 0	4 0		
Cucumbers, doz.	2 0	3 6		
Endive, dozen	1 0	0 0		
Herbs, bunch	0 2	0 0		
Leeks, bunch	0 2	0 0		
Lettuce, dozen	0 9	1 3		
Mushrooms, punnet	1 6	to 2 0		
Mustard & Cress, punnet	0 2	0 0		
Onions, bushel	3 0	4 0		
Parsley, dozen bunches	2 0	3 0		
Parsnips, dozen	1 0	0 0		
Potatoes, per cwt.	3 0	4 0		
" New, per lb.	0 2	0 0		
Rhubarb, bundle	0 3	0 0		
Salsafy, bundle	1 0	1 6		
Scorzoneria, bundle	1 6	0 0		
Seakale, per bkt.	0 0	0 0		
Sballots, per lb.	0 3	0 0		
Spinach, bushel	1 0	2 0		
Tomatoes, per lb.	1 0	1 3		
Turnips, bunch	0 4	0 0		

CUT FLOWERS.

	s. d.	s. d.	s. d.	s. d.
Anemone, dozen bunches	1 0	to 4 0		
Arum Lilies, 12 blooms ..	2 0	4 0		
Asters, per bunch, French	1 6	2 0		
Bouvardias, bunch	0 6	1 0		
Carnations, 12 bunches ..	4 0	6 0		
Calceolaria, doz. bunches	6 0	8 0		
Cornflower, doz. bunches	2 0	4 0		
Eschscholtia, 12 bunches	2 0	4 0		
Encharis, dozen	4 0	6 0		
Forget-me-not, doz. bch.	1 6	4 0		
Gardenias, 12 blooms ..	1 6	3 0		
Iris, various, dozen bch.	6 0	18 0		
Lapageria, 12 blooms ..	2 0	4 0		
Gladiolus, 12 bunches ..	4 0	9 0		
Gypsophila, per bunch, Fr.	1 6	2 0		
Lilium, various, 12 blms.	0 9	2 0		
" longiflorum, 12 blms.	2 0	4 0		
Lily of the Valley, dozen	4 0	9 0		
Marguerites, 12 bunches	2 0	6 0		
Maidenhair Fern, dozen	4 0	9 0		
bunches	4 0	9 0		
Mignonette, 12 bunches..	2 0	to 4 0		
" Fr., large bch	1 6	2 0		
Narcissus, 12 bunches ..	0 0	0 0		
Peony, dozen bunches ..	6 0	12 0		
Pansies, dozen bunches ..	1 0	2 0		
Pelargoniums, 12 trusses	0 9	1 0		
" scarlet, 12 bchs	4 0	6 0		
Pinks (white), doz. bchs.	3 0	6 0		
Primula (double) 12 sprays	0 6	1 0		
Ranunculus, doz. bunches	2 0	4 0		
Roses (indoor), dozen ..	0 6	1 6		
" Moss (Eng.), 12 bch.	9 0	12 0		
" Moss (Fr.), doz. blm.	0 9	1 6		
" Red (Eng.), 12 bch.	4 0	9 0		
" Red, 12 blooms ..	2 0	4 0		
" Tea, white, dozen..	1 0	3 0		
" Yellow	2 0	4 0		
Spiraea, dozen bunches ..	6 0	9 0		
Tuberoses, 12 blooms ..	0 6	1 0		
Wallflowers, doz. bunches	2 0	4 0		
White Lilac, French, per	4 0	5 0		
bunch	4 0	5 0		

PLANTS IN POTS.

	s. d.	s. d.	s. d.	s. d.
Aralia Sieboldi, dozen ..	6 0	to 12 0		
Arum Lilies, per dozen ..	8 0	12 0		
Arbor Vite (golden) doz.	6 0	8 0		
Azalea, various, per dozen	0 0	0 0		
Calceolaria, per doz. ..	6 0	9 0		
Climbing Plants, various,				
dozen pots	4 0	9 0		
Cyclamen, per dozen ..	0 0	0 0		
Dentzia, 12 pots	0 0	0 0		
Dracena terminalis, doz.	24 0	42 0		
" viridis, dozen ..	12 0	24 0		
Epiphyllum, per dozen ..	0 0	0 0		
Erica, Cavendishi, per pt.	2 0	3 0		
" various, dozen ..	12 0	18 0		
" ventricosa, per doz.	12 0	18 0		
Enonymus, var., dozen ..	6 0	18 0		
Evergreens, in var., do en	6 0	24 0		
" Ferns, in variety, dozen..	4 0	18 0		
" Fiens elastica, each ..	1 6	7 0		
" Foliage plants, var., each	2 0	17 0		
" Fuchsia, per doz. ..	4 0	9 0		
" Genista, per dozen ..	8 0	12 0		
Geraniums, Ivy, per doz.	4 0	to 6 0		
" Scarlet, per doz. ..	4 0	6 0		
Heliotrope, per doz. ..	5 0	8 0		
Hydrangea, doz. pots ..	9 0	18 0		
Lily of the Valley, 12 pots	0 0	0 0		
Lobelia, per doz.	4 0	6 0		
Marguerite Daisy, dozen	6 0	12 0		
Mignonette, per dozen ..	4 0	6 0		
Musk, per dozen	2 0	4 0		
Myrtilles, dozen	6 0	12 0		
Nasturtiums, dozen pots	3 0	4 0		
Palms, in var., each ..	2 6	9 0		
Pelargoniums, per doz. ..	9 0	18 0		
Rhodanthe, per dozen ..	6 0	9 0		
Roses (Fairy), per dozen	8 0	10 0		
" 12 pots	12 0	24 0		
Saxifraga pyramidalis,				
per dozen	18 0	24 0		
Spiraea, 12 pots	6 0	9 0		
Stocks, per doz.	4 0	6 0		
Tropeolums, various, per				
dozen	3 0	6 0		

Bedding Plants in variety, in boxes and pots.



LIVE STOCK.

SUPPLY and demand rule trade in everything, and in nothing more so than in farm produce. A decided advance in price may cheer the farmer's heart for the moment, but the intelligence of such an advance reaches the foreign produce practically as soon as it does us, and we know full well that market quotations will eventually show how prompt and full a response has been made to so tempting an invitation. A glut follows, prices fall again, and the losses of speculators are sometimes so heavy as to prove positively ruinous. Nor does such loss always fall upon the home producer, for according to a recent report shippers of cattle from the United States of America to this country have been doing so during the present year at a loss amounting to £50,000 weekly, and the report says also that America may soon need all her own cattle. Whether the amount given is or is not correct, the fact of good English beef selling at 6d. per pound is sufficient to show that markets are decidedly against the importer, and that all shippers of foreign cattle are having a taste of hard times just now.

The May report of the Washington Department of Agriculture shows the existence of other causes which may tend to check the

exportation of other live stock as well as cattle from America, for it enumerates a terrible catalogue of losses of animals from exposure, or in other words cold and starvation last winter in the States contiguous to the Rocky Mountains and the west coast. Of cattle 18.3 per cent were lost in Idaho, 17.5 per cent. in Montana, 17 per cent. in Nevada, 16 per cent. in Washington Territory, 15 per cent. in Oregon, and 10 per cent. in California. In the Southern and Eastern States the losses were comparatively small, but for the entire country out of 52,801,907 cattle, 1,927,022 died, 2.3 per cent. of the whole of the cattle in the country being positively lost from cold and starvation. Of horses 233,519 were lost, of sheep 3,309,276, and of pigs 3,925,691 died, or a grand total of 9,395,508 live stock lost outright, the greater part of which might have been saved by the simple means of an adequate provision of food and shelter. Apart from the inhumanity of the thing, one is really puzzled to know if there is any cause for this waste that does not appear upon the surface. It can do no good to indulge in strong language about so serious a matter, and we should be much obliged for enlightenment by any practical agriculturist on the other side of the Atlantic who is a reader of the Journal. According to the report there is no provision of food and shelter for stock on most of the ranches in the west and north-west, but surely it is in the power of ranche owners to make such provision. If so, why are they so dead to their own interests? The additional statement that in some States stockowners of late have provided shelter and food for the stock in winter, and have reaped great advantage by so doing, really reads like a piece of satire.

Turning to our own country, we find satisfactory reports of the condition in which store cattle left the yards for the pasture. "Never," says one correspondent, "was hay so abundant or so cheap," and so we still feel the benefit of the big hay crop last year. This plentiful supply of fodder is, in the opinion of some fanciers, now quite counterbalanced by the dull trade in beef, and it is insisted upon that no profit is possible upon the store cattle purchased while prices were so exceptionally high. Butter, too, has fallen so low in price that dairy cows may now be bought worth the money, but we think it will be found that at markets where cows are sold for milk walks prices for deep milkers are always fairly high. The cows of large towns or suburban dairies are regarded as mere milking machines. They are fed so well as to keep up a lusty condition and full flow of milk as long as possible, any approach to dryness being a signal for the butcher, as the failing cow has soon to make room for its successor.

Happy is the farmer who, under the depression, has kept up and enlarged his flock, for now he assuredly has his reward. Prices are entirely satisfactory for both sheep and lambs, but feed is plentiful, and feeding prospects so good that all who can will hold over the draft lambs for hoggets; yet, what a boon and relief it is for those who can realise £100 by the sale of a couple of score of lambs! Such live stock is undoubtedly the farmer's best banker, for he can realise principal and interest upon it as he requires money for current expenses, and the additional profit derived from the fertility imparted to the soil by the sheep folds is another inducement to devote as much of the farm as he can to sheep. Only he must have sound well-bred animals, and never be tempted by so-called bargains of sheep crippled by foot-rot, or any that are at all in a doubtful state of health. In every locality there are some really good sheep to be had, but flocks of really well bred first-class sheep are still the exception and not the rule.

WORK ON THE HOME FARM.

Haymaking has commenced in the southern counties in many places, but it will hardly be in full swing generally before another week. The time to begin is determined by condition of crop and local requirements. Where as much hay as possible is wanted mowing will not begin till the late grasses are in bloom, but where grazing is most important a full development of the late grasses will not be waited for. Now with a steadily rising barometer, so as to have a reasonable prospect of fine weather, and let the tedder follow the mower closely; keep it going briskly after the first turn, using the back action every morning to raise the hay sufficiently from the surface for the air to pass freely through it; and follow with the front action to toss up and well turn

over all the hay. In fine hot weather by a free use of the tedder the hay can be made in a couple of days, and be carted on the third day. If it is well advanced on the second day it is drawn into broad rows by horse rakes. In doing this many green locks of herbage untouched by the tedder will be raked out of little hollow places, and if the surface is very uneven there will probably be so many green locks that if the hay is carted at once they will induce violent heating in the rick. To avoid such risk the tedder is passed along the broad rows two or three times to shake the green locks apart, and to bring the whole of the hay into a uniform and suitable condition for carting to the rick.

In fair settled weather haycocks are unnecessary, and we avoid them altogether, but in showery weather we not only make them but also often use handrakes to rake the hay together into small windrows after it is scattered about from the cocks. It is then that expenses mount up, and the labour bill may become twice or three times as much as it would be in fine weather. In making silage all this risk and anxiety is avoided. We have simply to mow the fodder—grass, Clover, Tares, Rye, or Oats—whatever it may be, to collect and cart it at once to the stack regardless of weather, to apply sufficient pressure to exclude air, and our store of winter fodder is a certainty. One would suppose that every farmer would hail ensilage as a boon of incalculable value, and that haymaking for home consumption would practically cease, yet one may still go to a hundred farms and not see a stack of silage. Undoubtedly we farmers are slow, but whether we are sure is a very open question indeed.

PRESERVING EGGS.

ABOUT twelve years ago you gave a very useful recipe in the Journal for preserving eggs. We used it for a year or two, but have forgotten what the contents were. I know there were quicklime and magnesia, and I believe salt. If you would kindly repeat it you would confer a benefit on a number of your readers at this season.—GEO. CHARLTON.

[Possibly Mr. Tegetmeier's recipe may be alluded to, and is as follows (it is good):—"To preserve, say, 1000 eggs, take about 56 lbs. of lime in lumps, and place in a strong metal or stone vessel, pouring over the same some two gallons of boiling water; then cover over with strong sacking or bags, taking care the same does not fire, and leave in a safe place until quite cold. Then mix well with cold water (about twelve gallons), adding 7 lbs. of coarse salt, and pour carefully over the eggs, quite covering them, leaving out any sediment that may have settled at the bottom of the mixing pan. Pickle, so made, if right, will at the end of a few days, say one week, frost over as if covered with very thin ice, and if this does not happen, add more lime until the desired end is gained. The tanks should be examined occasionally, to see that all the eggs are covered with the pickle, and the latter frosted over, and also from time to time a little slaked lime added, by sprinkling over the surface, to keep up the strength of the pickle. Stone cisterns or any earthenware vessels are most suitable, and they should stand in a cool place, and not be moved about. The eggs must be freshly laid, not more than one week old, if good results are desired, and must be perfectly sound—i.e., not cracked, and every egg should be tested by sounding before placing in the pickling vessel. By the above means eggs may be kept any reasonable time, certainly from spring to winter." Another good method for preserving a few eggs for home use is to butter or oil them. Take the necessary number of thoroughly fresh eggs, and, after greasing your hands, take up an egg and rub it all over, thus stopping up the pores with the butter or oil. The egg must not be smeared but evenly done, and no butter must be left adhering in patches or flakes to the shell. As soon as done pack in a basket, and keep in a dry room or cellar, not subject to great heat.]

METEOROLOGICAL OBSERVATIONS.

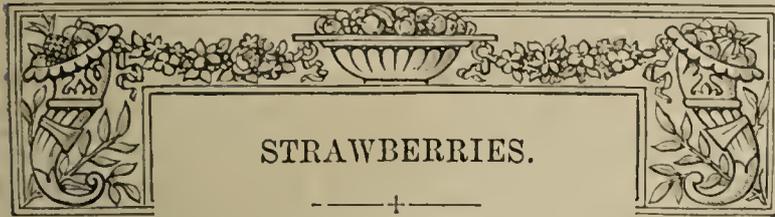
CAMDEN SQUARE, LONDON.

Lat. 51° 52' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	1890.	Baromet- er at 32° and Sea Level.	Hygromet- er.		Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.		Max.	Min.	In sun.	On grass.		
June.											
Sunday	8	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
Monday	9	30.182	60.5	44.4	E.	56.6	61.4	45.0	96.9	41.4	0.146
Tuesday	10	29.072	62.1	54.8	W.	56.9	71.7	51.3	122.9	51.5	—
Wednesday ..	11	29.834	67.1	60.0	E.	56.9	74.6	46.7	114.4	42.6	0.230
Thursday ..	12	29.855	59.0	53.8	S.W.	56.9	65.8	50.4	115.1	43.2	0.356
Friday	13	29.633	58.2	53.9	N.	54.4	68.9	50.1	112.8	47.5	0.267
Saturday	14	30.031	54.4	52.9	N.W.	56.5	64.1	51.3	111.8	50.6	—
		30.573	54.7	49.4	W.	55.9	63.0	43.8	111.0	46.2	—
		29.993	50.4	52.7		56.5	67.9	49.2	112.1	43.9	0.939

REMARKS.

8th.—Bright till 10 A.M., then clouded over, and generally wet afternoon and evening.
9th.—Brilliant early, and generally fine and bright day.
10th.—Bright and warm early; generally overcast after 11 A.M., wet from 2.30 to 5 P.M., and damp evening.
11th.—Gale, with occasional sunshine and storm rains at 9.30 and 11.15 and from 1 to 2 P.M., with thunder; then fair.
12th.—Threatening morning; thunder between 0 and 1 P.M., then bright for an hour or two; thunder and lightning and heavy rain at 4.5 P.M., and occasional thunder and showers after.
13th.—Dull and rainy till 10 A.M.; cloudy morning; fair afternoon, with some sunshine.
14th.—Fine, with frequent sunshine.
A very uniform week as regards temperature, and very similar to the previous one. Rainfall in excess, owing chiefly to thunderstorm rains.—G. J. SYMONS.



THE Strawberry season is just commencing, and for a period of two or three weeks the growers for market will have a busy time. In the Kentish gardens "the pickers" are taking up their quarters, and the farmers are preparing for a rich harvest. The general report is favourable as regards bulk of crop, but it is late, and that is an important matter, though as it affects all nearly equally except those in very favourable situations, the average price will not be much influenced. Dwellers in large towns are accustomed to seeing a great influx of Strawberries at the close of June and early in July—markets, shops, and hawkers' barrows are plentifully stocked with the tempting fruits at prices that come within the reach of all would-be consumers. Few, however, beyond those immediately concerned with the large fruit markets have the least idea what an extensive business it represents, what a number of persons it employs, and what an amount of money is turned over in dealings for this fruit alone in the course of a month.

Kent may fairly claim to be the headquarters of the Strawberry industry, and in one district alone, within a radius of two or three miles of Mr. Cannell's Home of Flowers, there are some hundreds of acres occupied with Strawberries, from which probably a far greater weight of fruit is sent to the London and provincial markets than from any other district in the kingdom. Many tons are dispatched from Swanley Junction each week of "the season," either for sale as fresh fruit or for conversion into jam. Having such large quantities to deal with the growers have to employ considerable numbers of pickers, who are paid so much per peck, the price varying according to the time of day when the fruit is gathered, the best price going for that obtained in early morning. Men, women, and children are employed, and must require close supervision to ensure the necessary care in handling the fruit, and having regard to the treatment so delicate a fruit has to endure it is surprising that such good samples reach the markets. In too many cases very little care is taken in packing and sorting, the fruits are dispatched in large baskets just as gathered to save time, and the average price must be greatly lowered in consequence. When, however, the Strawberry market really commences it is a rush with all to place their fruits on sale as quickly as possible, and beyond that the fruits themselves are quickly spoiled on the plants if not gathered closely. These facts afford excuses for the hurried careless mode of procedure adopted by some growers, but none the less, with a better organised system, properly sorting the fruits, and sending them up in punnets ought to pay well for the extra labour at least as regards all good fruit, and poor samples do not stand a chance in the present day, except for jam making.

One of the most remarkable Strawberry farms in this country is that bearing the title of "The Royal Strawberry Garden," at Knowle Hill, near Virginia Water, Surrey, which is presided over by Mr. T. Sharpe. Some years ago reference was made to this home of the Strawberry, but as there are many additional readers since then a brief description may possess an interest at this time of year. The Knowle Hill Gardens are situated in one of the most delightful districts of Surrey, the land sloping to the south, well sheltered to the north and east, a warm and naturally early position. The soil is, however, a peculiar one, and the most

experienced cultivator would never think of recommending a fruit farmer to attempt growing Strawberries upon a pure sand. This is what prevails at Knowle—a dull coloured, soft, fine, close sand, which in a hot summer might be expected to be little better than a desert, and perhaps that had been its condition until Mr. Sharpe took it in hand seventeen years ago, and converted it into one of the most productive Strawberry farms. It was accidentally found that Strawberries succeeded unusually well, and Mr. Sharpe being a practical and observant horticulturist was not slow to take advantage of this fact; the single row of plants was rapidly increased, and the chance crop soon became under good management the foundation of a profitable business.

The plants are grown closer together than in the Kent gardens, because the soil is never dug between the rows and no manure is applied, another extraordinary circumstance in such a soil. The rows are about 2 feet apart, and beyond a little grass clippings placed between the plants to prevent too rapid evaporation from the soil and to keep the fruits clean nothing whatever is employed. The plants make but moderate growth and small leaves, not a suspicion of grossness, but the fruits are both large and abundant in the extreme, such a crop, indeed, we have never seen elsewhere under any system of culture. Marguerite is largely grown and develops marvellous fruits, large, richly coloured, and of good flavour. Fruits weighing an ounce each are common, and one fine specimen we measured was $5\frac{1}{2}$ inches in circumference over the apex of the fruit and 5 inches in circumference at the base. As much as $4\frac{1}{2}$ lbs. per plant has been obtained from this variety, and some of the plants cannot have less than this amount upon them now ripe and ripening. British Queen is another favourite at Knowle and it succeeds remarkably. Alice Maud, Sir Joseph Paxton, and other varieties are grown similarly well, besides several promising seedlings, which are distinguished by their earliness and prolific character.

Small quantities have been gathered for some time, but the work commenced in earnest on Monday with 4 cwt. carefully sorted into two or three grades, placed in punnets with leaves, and packed in layers in boxes holding four dozen punnets. Every detail in this way is studied, and the result is the fruit commands the best price obtainable. It might be thought that the plants would be quickly exhausted, but this is not the case, for six-year-old beds look perfectly satisfactory as regards crop, though the finer fruits are borne by the younger plants. It would be interesting to have an exact analysis of this soil, for it evidently possesses something essential to the Strawberry. One point in its favour is that it is much more preservative of moisture than would be supposed at first glance, for when the surface becomes dry to the depth of about an inch, this serves as a protective layer, and the soil about the roots of the plants is often sufficiently moist, when in heavier land it would be cracked and dried to a hurtful extent. The Royal Strawberry Gardens are indeed full of interest and suggestions, and to conclude this reference it may be remarked that a custom is adopted similar to that in the old Cherry orchards in the West of England—namely, visitors are admitted at a charge of 9d. each, and allowed to gather and eat as many Strawberries as they please, and it is fortunate for Mr. Sharpe that he is not nearer London, or he might find this arrangement exceedingly unprofitable.

Strawberries will receive special attention on Friday next, June 27th, at the Conference of the British Fruit Growers' Association in the library of the Royal Aquarium, Westminster, when several points touched upon in this article will be dealt with at greater length. For instance, Mr. Shirley Hibberd has undertaken to discuss the origin of cultivated Strawberries, Mr. J. Wright will discourse upon the culture of garden Strawberries, Mr. G. Bunyard will give some useful hints relative to Strawberries for market, and Mr. T. Laxton will explain his methods of

raising seedling Strawberries. This programme ought to furnish ample subjects for profitable discussion, and in addition there will be exhibits of as many varieties as possible.—C.

HARDY FLOWER NOTES.

ONE of the charms of hardy plant growing is that there is a constant succession of flower. Hardly a gap exists in the procession of beauty which moves on throughout the year. Even in the dull dark days of winter some adventurous Crocus or Primrose in a sheltered nook will peer from its snug corner as if to prove that some at least of Flora's subjects need no glass roof to enable them to declare with mute yet—paradoxical as it may seem—eloquent tongue the power of their goddess. And if this is so in winter, in the leafy month these voices of beauty reveal themselves at every turn. While all own the suzerainty of Flora there is no slight rivalry among her vassals for the distinction of the queen of flowers. The Rose has her adoring subjects, the Lily has hers; but the grower of hardy plants may be said to be a universalist, paying homage to many in turn. And now where is he to begin? Few among our garden flowers are at present finer than the Pyrethrums. They have become so well known that the danger is that from the very fact of their being so plentiful they may be driven, to a great extent, from many gardens. I heard a lady, who had once given the white *Anemone japonica* an honoured place in her garden, say that she "did not care for it, it was so common." It would be unfortunate if this spirit—which is, unlike the *Anemone*, too common—should lead to the neglect of such a valuable flower as the *Pyrethrum*. The progress which has been made in the improvement of these flowers will, however, do much to retain the flower in the estimation of those who constantly seek for something new, while the true flower lover will cherish it for itself.

Much has been said as to the respective merits of the single and double flowers, but both are valuable in their place, the single varieties being perhaps more graceful as a cut flower than the others. The Poppies are brilliant as usual, and all are fine in their way, from the dwarf and delicate *Papaver alpinum* to the showy varieties of *P. orientale* or *P. bracteatum*. It is a pleasure to see that our florists are at work on *P. orientale*, and that we have to thank the vagaries of fashion once more for an improvement in flowers. Few things are more showy in the garden than this fine Poppy, but unless great care is taken in choosing a position for it the colour will "kill" everything near. I have been admiring a fine seedling in my own garden of great size, and with splendidly marked black blotches at the base. It is far superior to the variety I have had in the garden for some years, and which is known here as the "Branch" Poppy. Looking at these flowers one can realise the force of the language of Ruskin, when he says in "Proserpina:"—"We usually think of the Poppy as a coarse flower; but it is the most transparent and delicate of all the blossoms of the field. The rest, nearly all of them, depend on the texture of their surface for colour. But the Poppy is painted glass; it never glows so brightly as when the sun shines through it. Wherever it is seen, against the light or with the light, always it is a flame, and warms the wind like a blown ruby."

The imperial *Delphiniums*, with their stately spikes of blue, are now opening to add their various shades of beautiful colouring to the scene. One splendid clump will have many fine spikes of light blue, and near it stands the noble *Lilium giganteum*, now showing its flower buds at the top of its tall stem. It has stood unscathed the fierce winds and heavy rains of late, and seems to feel the storm but little even without a stake to support its stalk. The first of the Lilies to flower in my garden is *L. Szovitzianum*. This is a very pleasing Lily with beautiful citron blooms arranged like Turk's Cap Lily, and with black spots. This Lily has a very powerful and agreeable perfume, which can be felt some distance off. Most of the other Lilies are doing well with the exception of *L. candidum*, which made very strong growth in spring, but since then has been almost at a standstill, although there is, as yet, no sign of the disease which attacked it last year. Several *Sedums* or *Stoneworts* are in flower, one of the best being *S. kamtschaticum*, but these neglected plants deserve some notes to themselves, and I would prefer to reserve my remarks for a little until opportunity offers. The most fragrant flower in the garden is the old double white Pink. Fine as Mrs. Sinkins undoubtedly is, the old variety has advantages the new does not possess. It is earlier, a far more compact garden plant; the calyx is not so apt to split, and last, but not least, when out of bloom, and even in the depth of winter, the old *fimbriata* is a much more attractive object in the garden. It is of great value as a foliage plant, a point it shares with most of the fine single alpine kinds now in bloom. Indeed, few things

are of more value in early spring, a healthy plant being a dense mass of glaucous spiny foliage.

A fine yellow tree Lupine (*Lupinus arboreus*) is extremely decorative. It has high upon 200 spikes in flower as I write (18th June), and will be in flower for a long time yet. I observe with great pleasure the notes by "D., Deal," on hardy plants. *Primula cashmeriana* is indeed worthy of a better place than the back of the rockery. One thing I have noticed of this fine species is that if grown on a dryish position a little above the ground level it has a more pronounced habit of elevating its leaves so as to show the golden farina of the under surface, which renders it extremely pretty when thus placed. *Anemone sylvestris* does not prove troublesome on my light soil. Here *A. japonica* grows and flowers, but does not spread so rapidly or flower so freely as on stronger soils, and possibly it becomes almost a weed, as in some gardens I know the other species will show a similar tendency. Low down at the base of a rockery are several *Mimulus* now in full flower, and one of them carpeting a clump of *Lilium chalcidonicum*. One of the finest of the dwarf *Mimuli* is *M. cupreus* Prince Bismarck, a new purple variety, which I have just flowered for the first time. It is well worth growing by those who have a damp half shady situation to accommodate these flowers. Irises and Thrifts, *Thalictrums* and many others, must bide their time, and this homily must be drawn to a close, the rain pouring down upon my flowers as I write looking out upon them as they brighten the garden by their beauty.—S. ARNOTT.

RED SPIDER ON VINES.

THERE are few Grape growers who are not acquainted with red spider and the mischief it commits if left undisturbed. Although one of the smallest of garden pests it is one of the most destructive, and at the same time one of the most difficult to exterminate. There are gardeners who believe strongly in sulphur applied to the hot-water pipes for destroying red spider, but from experiments and observations I have lost faith in the so-called remedy, and have discontinued its use. I do not say it will not tend to act as a preventive when applied early, but it requires to be used with caution or it will have an unfavourable influence on the tender foliage and berries in their earliest stages of development. I well remember once, when acting in a subordinate position, being directed to apply all the heat obtainable from a large tubular boiler to one vinery for the purpose of a sulphur application, and the pipes thus became so hot that the hand could not be sustained on them for a moment, and while so heated I had to apply sulphur not merely of a thin paint-like consistency, commonly practised, but put on as thick as was convenient to do. The air of the closed structure was highly charged with sulphur fumes and was allowed to remain so for several hours before the ventilators were opened. This operation was carried out early in the evening, the house being opened, and the heat turned off to allow of the air becoming pure before sunrise, but the spiders on the morning examination appeared none the worse for their sulphur treatment.

Not content with this, renewed efforts were directed the following evening in extra heat and sulphur supplies, but to no avail, and we were compelled to admit that we were beaten. We then set about the longer lasting and tedious operation of sponging the leaves with a solution made with soft soap and sulphur with a more satisfactory issue than attended our previous exertions.

It is somewhat remarkable as to what constitutes the origin of the pest on Vines. I have generally been led to believe that weak or ill-managed Vines would prove the easiest prey, but I find that not only are such the victims, but also those possessed of extraordinary vigour. Only a short time since I was privileged to see some of the finest Grapes that were ever produced; the foliage, although of considerable texture, bore evident traces of this noxious garden enemy. Such labour as the sponging of a large house involved was, however, not considered too much, but was pushed on assiduously during the early and late hours of the day, which is the only convenient time for such work when bright sunshine prevails. Sulphur found no place in this instance, and I think I am correct in saying that it is not used in the house for any purpose, but Fir tree oil is found more reliable when properly used. An ounce of the fluid to a pint of soft water is found to be suitable proportions for sponging purposes, and used in this way the amount stated would provide sufficient for a large portion of roof space in leaf-sponging. At this strength it has been found to act as a deterrent to young and succeeding broods, and should, therefore, prove economical and cheap.

Sulphur mixed with water and used for sponging is good when employed against red spider, for the leaves charged with this preparation do not provide a healthy feeding ground for them; but on the contrary, they seem to lose appetite and dwindle away,

provided of course that the work is thoroughly and carefully done, and sufficient of the powder is used. Some damp the foliage by syringing, and then dust the leaves with sulphur, but I have painful recollection of the fatal issues of such a course, although mine was perhaps an unusual experience. The foliage became scorched badly when exposed to bright sun the day following the application, presenting an unsightly appearance the remainder of the season. Fortunately the practice was needed only to a limited extent, as it was initiated at the earliest period of attack. A weaker solution applied with the syringe is often fraught with disappointment, because, no matter how carefully it is done, some of the berries are sure to be disfigured by the deposit which is left, and once it becomes set it is not easily removed afterwards, and where presentable bunches are the desideratum, such a course is not likely to meet with adoption, at any rate not more than once. It will be seen that the most cleanly and effective method of dealing with the pest under notice is by sponging, and it is almost beyond doubt that Fir-tree oil is the best insecticide for the purpose.—W. S.

THE HYDRANGEA.

I WOULD call attention to a plant not by any means so generally cultivated as it deserves to be, but which seems to be more affected by certain soils than most other plants, though the causes which produce so changed an appearance are by no means well understood. The plant to which I allude is the Hydrangea, which, though quite hardy, is not extensively planted. The variable character of its flowers when the plant is grown under certain circumstances has for many years been a sort of horticultural puzzle, which is still far from being satisfactorily solved. Plants with bright pink flowers, and those with flowers of a tolerably good blue are not unfrequently met with in positions near each other, and apparently in soils exactly alike, while plants grown in an ordinary manner for the most part have either all pink or all blue flowers, as the circumstances of their abode may determine. Now and then certain modes of treatment, directed by skilful cultivators, present us with plants producing flowers of both colours; but that every attempt to change the colour of Hydrangeas is not attended with the desired success is a fact that need hardly be mentioned, and the many failures which have occurred have led to the conclusion that the proper means to accomplish the end in view are not yet sufficiently understood to be depended upon.

Some time ago it was pointed out that iron rust would not always effect the change in colour so much desired. Experiments have also been made which proved that much uncertainty existed whether the means employed were those absolutely effecting the change, or whether such alteration in the colour of the flower was not due to some other cause of which we are still ignorant. Be this as it may, Hydrangeas flowering pink and others flowering blue have been known for many years, and it remains yet to be proved whether iron in some form has anything to do with the change or not; but certain it is that the removal of a plant from a soil in which this element is only found in very minute particles to one in which it exists in greater abundance does not for some time produce any change, yet that a change does eventually take place in most cases (not all), is also generally admitted. Now to what cause is this change due, and why is not the bloom of other plants affected in a like manner? This problem is highly suggestive of study, and offers a fair field for experiment.

In general, Hydrangeas growing in a peaty soil flower blue, while those in soil of an opposite character produce pink flowers, but there are exceptions in both cases, and this reminds me how well the Rhododendron thrives in some of the dells, as well as elevated positions, in Cornwall and Devon. I believe the same may be stated to be the case in most of the western counties, as far north as Cumberland, and probably still further north; but every hill and eminence is not suited to the Rhododendron nor blue Hydrangea, and it is wonderful how the line of demarcation is drawn in some places. Some years ago I happened to be at a garden near Plymouth, and the gardener pointed out the boundary line separating the blue Hydrangea from the pink one, which was also the line of demarcation, indicating where the Rhododendron ceased to do well. These boundaries, though not so marked as those of land and water, were nevertheless very evident. The most probable theory as to the cause of such variety in the crust of the earth is that at some early convulsion, something was thrown to the top at one place, which differed in its chemical constituents from what was exposed at another, though the two might be adjoining, and that each through the many ages of the world's history has maintained that difference. Though iron in some form may be said to exist to a considerable amount in most of the soils producing the blue Hydrangea, and though Rhododendrons thrive best in a soil in which this element

is also found, yet I am not sure that we have not overlooked some still more active agent as being the cause in both cases. As a proof that iron alone will not always change a pink Hydrangea into a blue one, I may mention that large quantities of that metal have been at times added to the soil without the desired effect. Neither has alum dissolved in the water applied to the plants been always attended with success. On the other hand, now and then a plant will produce blue flowers without any apparent cause, so that we are sometimes almost led to the belief that caprice has something to do with the matter. It is almost unnecessary to say that is not the case, but our knowledge of the cause of the change is far from perfect. Time is always required, even when the elements necessary to effect the change are present, and a plant that has been growing under conditions favourable to the production of pink flowers will not produce blue in the first season that it is removed to a soil where blue flowers are the rule. This slow change is easily accounted for, and need not be commented on, as the Hydrangea, like most other deciduous shrubs, sets its bloom buds in the preceding autumn, and their expansion the following season will be in accordance with the character of the material in which they have been formed, but in course of time, in consequence of the new food, the juices of the plant become changed, and flowers of another character are prepared. This change may possibly not be effected, even in the second year, as I have witnessed, but it is sure to follow.

Notwithstanding the general hardiness of the Hydrangea, in some cases where it has been injudiciously planted out in a damp situation its summer growth is not sufficiently ripened before winter sets in, and there is consequently no blossom. A low damp situation is by no means suitable to it; a dry, sunny, and airy one is more in accordance with its wants, and I believe the largest plant I ever saw of it was in a very exposed situation in Northumberland, elevated considerably above the surrounding country, but at the same time dry, the subsoil being the loose shatter stone overlying a freestone quarry. This plant flowered pink, as might be expected from such a soil; but if it had been growing in a valley not more than a stone's throw from its position, in all probability it would have produced blue flowers, if indeed it had bloomed at all, as a black peat morass of considerable depth formed the base of this quarry, thus showing how soils of a diametrically opposite character may be found in juxtaposition. I am not aware whether Hydrangeas were ever tried in this morass, but I have seen plants growing on a soil partaking largely of ferruginous matter, and the flowers were generally of a very good blue, and one season a gentleman brought me some blooms of Hydrangea japonica, perhaps a brighter blue than I ever remember with the old one. The plant was growing on a dry sandy soil, where the Rhododendron and others of its kindred were quite at home.

It is certainly remarkable that few, if any, plants show such a difference in the character of their flowers as the Hydrangea does when planted in soils favouring the two extremes. Most plants to which chemical and other substances are sometimes applied exhibit a difference in their general health as well as in their foliage, but the Hydrangea possesses as robust health in the one condition as in the other; at the same time we may be right in assuming pink to have been the original colour. Its change to blue seems to be due to some soluble substance contained in the soil and taken up by the plant, and carried through its system into the flower buds. There may also be some peculiarity in the plant favouring the storing away of such soluble matter as will affect the change. Iron is the only substance that I have experimented with, and then only with varying success, but alum or some other salt may effect a change: still the light thrown on the subject is far from being satisfactory, and discussion may doubtless bring about a better understanding.

I cannot conclude without adverting to a very common disappointment—namely, that this plant will not produce blue flowers when grown in a pot and in peat soil, and water impregnated, perhaps, with chalk or lime is supplied to it from a well. Water of this kind neutralises the effects of the peat, and the flowers are pink instead of blue. I believe many of the so-called failures in obtaining blue flowers arise from this and similar causes. I may also add that such water given to Heaths and kindred plants growing in peat soil is at all times hurtful, as the soil and the water have opposite effects; and in the case of the Hydrangea it is useless to expect a good result from a mixture of opposite ingredients, as the chemical properties wanted in a soil must not be neutralised by the water administered to it possessing those of an opposite character, as the object sought after is rather an extreme than a neutral combination. Those, therefore, who expect to have blue flowers on Hydrangeas ought to be careful what description of water is supplied to them, and it is not too much to say that this has really more to do with the success of the plants than the soil they are

grown in, but to make doubly sure the one as well as the other ought to be duly attended to.—J.

FLOWER CULTURE FOR PROFIT.

MAIDENHAIR FERN.

WHEREVER cut flowers are used there is inevitably a good demand for Fern fronds, and especially those of *Adiantum cuneatum*, and in a lesser degree of forms that have sprung from or are nearly allied to that good old favourite. Various substitutes have been tried, including the elegant and very durable South African Asparaguses, but it is the common Maidenhair that is still principally relied upon for filling vases, fringing bouquets, and working into wreaths. *Adiantum gracillimum* is sometimes asked for, this being very effectively interspersed among flowers in hand bouquets and wreaths, while *A. mundulum* is perhaps the best for backing buttonhole bouquets. For the latter purpose *A. Paccotti* is also suitable, this having more dense or tufted fronds which last well. In addition to being the best in a cut state and very effective as plants, these *Adiantums* are also among the most easily cultivated of Ferns generally, and the mistake most often made is in unduly coddling them.

We prefer to work up a stock of seedling plants, these growing more freely than do those obtained by freely splitting up old plants just as they are commencing active growth in March. Where the fronds are kept very closely cut, few if any arriving at full maturity, no seed spores are formed, and it follows no seedlings are ever raised. When, however, a few strong plants are not cut from, these being kept in somewhat moist and not overheated houses, abundance of seedlings will spring up in all directions, notably on damp walls, the surfaces of the soil in undisturbed pot plants, floors and such like. Thousands of plants might also be raised by shaking the matured spore-bearing fronds over or laying them on the surface of well drained pots or pans filled with peaty compost previously baked to destroy the spores of other common Ferns that it may contain, and then thoroughly moistened, covering with squares of glass only. No overhead waterings must be given, but if pots or pans are set in other water-holding pans in which an inch or rather more of water is always kept, sufficient moisture will constantly ascend to the soil. A shady position in a house kept at from 55° to 65° will answer well, and germination ought to take place in a few weeks. The surface of the soil will first be covered with small, green lichen-like growths, technically termed the prothallus state of the seedlings, and not till the first formed fronds are well advanced should the tiny seedlings be carefully pricked out in pans of fine peaty soil; shade, heat and moisture in moderate quantities being needed for them. When large enough to handle somewhat freely these pricked out seedlings and any self-sown may be potted off singly into thumb pots, and if not exposed to much sunshine or dry heat will be fit to shift into 4-inch or rather larger pots in the following spring. Then if strong plants are needed, or a good autumn supply of fronds desired, yet another shift may be given with advantage directly the pots are well filled with roots. Seedling plants can also be purchased in large numbers at a cheap rate, though the trade are naturally somewhat chary in offering these to private growers.

As most gardeners are well aware, *Adiantums* may be freely and roughly split up early in the spring, the divisions going into 5-inch pots or larger sizes. The bulk of ours are either shifted into or returned, after the soil about the roots has been considerably reduced or combed away with the aid of strong-pointed stakes, into clean well-drained 7-inch pots, but there is no reason why much larger pots should not be used providing the plants are large enough to require them. A compost consisting of two parts of roughly broken up turfy loam to one of either peat or leaf soil, with a little charcoal and sharp sand added, suits these *Adiantums* well, but if only clayey or very heavy loam is available then ought much less of this and more fibrous peat to be used. This class of Ferns when strongly rooted ought to have weak liquid manure occasionally, and that is one reason why loam if good is to be preferred to peat, the latter being most liable to become sour under the influence of liquid manure.

All this is very well understood by most private gardeners, and where these err principally is in growing the Maidenhair Ferns too rankly, the fronds being too soft to be serviceable. Kept in a much shaded moisture-laden stove or fernery the plants grow strongly and present a very healthy appearance, but the fronds quickly wither when exposed to a dry and it may be gas-laden atmosphere. Moreover, those dense deep green fronds are not what is wanted nowadays, the preference being given to those less coarse and of yellowish green colour. Nor is this to be wondered at,

the contrast between the two being most marked in favour of the more delicate looking fronds. It is a simple matter to have the fronds of the desired colour and substance and yet hard and durable, but not if the plants are kept in a strong heat and much shaded house and a moist atmosphere. They ought to be kept clear of all other Ferns, and on benches, stages, and shelves where plenty of light and a moderate amount of sunshine will reach them. At this season of the year, or any time after they have become well established in their pots, a greenhouse rather than a stove temperature best suits them, no currents of cold air, however, being allowed to reach them. They start well in vineries, but should go into lighter quarters directly the foliage of the Vines affords a heavy shade to anything underneath. It is almost needless to add these Ferns should not become very dry at the roots during the growing season, nor should water long be withheld while they are resting. In the autumn and winter the fronds retain their freshness longer in an equable temperature of about 50°, a somewhat dry atmosphere also being maintained. A winter supply may also be had by shifting strong plants that have not been much cut from, and which have been kept in a greenhouse during the summer, into slightly larger sizes, and placing them into a fairly brisk heat early in September. The old fronds should be removed before they injure the young ones that are soon pushed up strongly, and if the supply obtained in this way is not particularly serviceable as far as durability is concerned, they are yet fairly profitable. The less these or any other Ferns that are grown principally to cut from are treated to overhead syringing the more durable will be the fronds.

Whatever may be the methods adopted by market growers generally, we prefer not to clear off the fronds from plants wholesale, but rather to thin them out freely. It should be remembered that the fronds perform much the same functions as leaves, that is to say they lay the foundation of future buds or crowns. Cut all off at one time early in the season, and a very weakly growth must follow; leave a moderate number to mature, and successional fronds during the same and following season usually result. They are sold in bunches of thirteen fronds to the dozen, the prices for the best varying from 6d. per dozen to 8d., the latter price rarely being obtained. Even if lower prices on an average are returned, it will yet be very evident that the culture of the Maidenhair Fern is decidedly profitable. I ought, perhaps, to add we have never tried the London markets, no difficulty being experienced of getting rid of all we grow locally.—M. H.

MR. JAMES CLARK.

THE death occurred, at his home in Denmark Place, Christchurch, Hampshire, on the evening of the 5th inst., of Mr. James Clark, the well-known raiser of a number of valuable varieties of Potatoes. Mr. Clark, who was in his sixty-fifth year, was a native of Tuckwell, near Christchurch, and attained considerable skill as a gardener in the neighbourhood. In later years he gave much attention to the art of hybridising, being successful in introducing several good sorts of Potatoes into the market. His chief success was the *Magnum Bonum*, which gained a world-wide fame through Messrs. Sutton & Sons of Reading. A few years ago he was the recipient of a small testimonial in consideration of his skill in this branch of horticulture. Mr. Clark had been in failing health for nearly twenty years, and from time to time had undergone painful operations. He bore his last illness—which extended throughout ten weeks—with great resignation and patience, and his last moments were very peaceful. He had gained much esteem locally as a Sunday school teacher and an active and earnest worker in Christian and temperance movements, and he will be much missed by the congregation at Cranemoor, the little village where he spent the last twenty years of his life. The funeral, which was numerously attended, took place in Christchurch Cemetery on the 9th inst., and was very impressive. The coffin was borne by four of his fellow church members. Memorial services have been held at Christchurch and Cranemoor. The Revs. W. T. Moreton and H. W. Jenkins spoke in high terms of the Christian devotedness and the upright and noble character of the deceased. A public subscription list has been opened to raise a memorial stone over Mr. Clarke's grave, and any sums towards this object will be received by Mr. G. Herbert Marshall at the office of the *Christchurch Times*, West End, Christchurch, Hants. Any surplus proceeds that may result from this subscription it is intended to hand to the widow and child of the deceased.

We do not call to mind any gardener who has done more for his country during recent years than Mr. Clark has by the raising of the

most serviceable and widely cultivated Magnum Bonum Potato. This was obtained from seed of the Early Rose in 1871, and the stock passed into the hands of Messrs. Sutton & Sons in 1874.

NOTES ON A TRIP TO JERSEY.

(Concluded from page 507.)

THE CHAMPION GRAPE THINNERS.

GRAPE-THINNING is quite a business in Jersey to some men. From January to the end of June they do nothing else, so they have plenty

day. There are few men that can equal him in his work, and I believe he has never been beaten in a contest, although he is run very close at times, as the following instance will show. A large grower of Grapes had a house of Gros Colman Grapes, and being desirous of having them thinned as quickly as possible, he put this man and two others on to do them, and offered a prize to the man who thinned the most bunches in a day. The bunches were regular in size all over the house, about 1½ lb. each. The house was divided into three parts, and the men were not to be disturbed by anyone. At the end of the day the Frenchman had thinned 365 bunches, the next man 360, and the other 349. The work



FIG. 73.—MR. JAMES CLARK.

of practice, and are able to do far more work than ordinary gardeners. The lean-to house at Highfield Vineries is 90 feet long by 17 feet wide. The crop was a light one last year, about 800 lbs. (Black Hamburgh). Time taken to thin the Grapes, two and a quarter days (by one man), and the work was done well. In the house of Gros Colman Vines at the same place the crop was between 600 and 700 lbs.; the bunches being larger took more time to thin, but the same man thinned them in rather more than two days. He is a Frenchman, and is considered one of the fastest Grape thinners in Jersey. He does nothing else during the Grape-thinning season; going from one place to another he usually thins about 300 lbs. of Grapes per day. He does not work by the day, but takes the houses for a given sum, and earns about 12s. per

was done very well, and the men worked from six in the morning until eight at night.

After bidding good-bye to the old farmer and Grape grower, we made our way down through a deep and well wooded valley that looked splendidly after the recent rain, to Grove de Leeg, and here were our friends. This place is evidently well patronised by visitors, for there are large dining rooms and stabling. After partaking of refreshment and enjoying a stroll, we returned by the St. Aubin's Road, and calling at the residence of a friend, who has some eight or nine houses of various sizes, where he grows Grapes, Melons, and Tomatoes for market, the proprietor being an old sea captain. There were some good Lady Downe's and Black Hamburgh Grapes. He adopts a different plan

from Mr. Bashford's in growing his Tomatoes. They are planted in rows through the houses. He has a framework of wood and wire, and he lays in plenty of wood, stopping the laterals after showing one bunch of fruit. They appeared to me crowded, but he had plenty of splendid fruit, which paid him well, and he knows what he is about. He had only been in this place about six months (at the time of my visit). He has planted three or four houses with young Vines, the same houses being filled with Tomatoes.

APPLES.

The climate and soil of Jersey are most suitable for the finer sorts of Apples; if anyone has a doubt on this point, a visit to the fruit show held each year in October would set all doubts at rest. I question very much if any country can produce finer Apples either for flavour, size, or colour, but still there are not nearly so many grown as there ought to be; they form a crop that pays if well done. Where the Apple is grown for exhibition the trees are not allowed to carry too many fruits, and the same may be said with respect to those who grow them for market. A medium crop of fine fruits pays better than a heavy crop of small fruits. Most of the finest fruit are grown on dwarf trees, and except in the most sheltered places they are the best for Jersey. Ribston Pippin grown on south walls produces grand fruit. The following may be said to be the best for bush trees—Blenheim Pippin, Flower of Kent, Beauty of Kent, Hawthornden, and Devonshire Quarrenden.

PEARS.

The Pear may be said to be the fruit that Jersey is most noted for, and more trees ought to be grown. I believe it would be a good investment to build walls with a south aspect and plant nothing but Pears. Fine fruits make very high prices, and by proper thinning very large fruit can be and is grown. The largest Pear grown is Belle de Jersey. This Pear when grown on bush trees often weighs 2 lbs., but when grown on walls is often 2½ to 3½ lbs., and realise 5s. to 10s. each. Small fruits of this sort are worthless for market, but for fine fruit there is always a good demand. Another fine looking Pear that often grows to a great size is Catillac; this must be well thinned to show its true character. The last season was not one of the best for fine fruit, but the first prize twelve fruits of this variety weighed 21 lbs. These twelve fruits I saw growing on two young trees four years planted, and they realised far more than a heavy crop of smaller fruit from six larger trees. The above two Pears may be taken as the finest looking and heaviest that are grown, but not many of them are grown, as they are only culinary sorts. The most popular Pear grown in Jersey is Chaumontel, and it pays best to grow it really well, and to get size and flavour it must have a south wall. When well grown it will weigh 18 to 20 ozs., but it is often seen in quantity about 14 to 15 ozs. each. Good samples often sell in Jersey at £4 to £5 per 100 fruits. Small fruit, 4 to 6 ozs., is not worth more than 1s. per dozen. Another popular Pear is Doyenné du Comice. I think this is better than Chaumontel, it is a fine Pear and grows about the same size and realises the same price as the Chaumontel; I have known one tree of this variety with a spread of branches 12 feet by 7 produce 100 fruit that weighed 75 lbs. Another good old sort is Duchesse d'Angoulême, I have had it myself nearly 2 lbs. weight. Peaches are not much grown for market, and the same may be said about flowers.

All the Grapes in the unheated houses finished well and sold at from 1s. 3d. to 2s. per lb. in August and September. That is a good price at that time, and if we can get 1s. per lb. clear for Grapes from unheated houses they pay very well.

ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 18th inst., at the Institution of Civil Engineers, 25, Great George Street, Westminster, Mr. Baldwin Latham, F.G.S., President, in the chair. Mr. C. C. Farr, B.Sc., Mr. J. Hall, A.M. Inst. C.E., Mr. C. R. Rivington, and Dr. J. L. Whitehead were elected Fellows of the Society. The following papers were read:—

1. "On the difference produced in the mean temperature derived from daily maximum and minimum readings, as depending on the time at which the thermometers are read," by Mr. W. Ellis, F.R.A.S. In the publications issued by the Greenwich Observatory authorities, the maximum and minimum temperatures are those referring to the civil day from midnight to midnight. At many stations the observers only read their instruments once a day—viz., at 9 A.M., when the reading of the maximum thermometer is entered to the preceding civil day, and the reading of the minimum thermometer to the same civil day. Such stations are called "Climatological stations." The author has tabulated the Greenwich maximum and minimum temperatures according to both

methods for the years 1886-89, and finds that the climatological maximum and minimum means are in excess of the civil day means.

2. "On the distribution of barometric pressure at the average level of the hill stations in India, and its probable effect on the rainfall of the cold weather," by Mr. W. L. Dallas. The weather over India during January, 1890, was very dry, and in marked contrast to that which prevailed during January, 1889. The distribution of barometric pressure was, however, much the same in both months. The author has investigated the records at the hill stations, and has prepared charts showing the distribution of barometric pressure from both high and low level stations. From the high level charts it appears that the mean barometric gradient in 1889 was rather more than twice that in 1890, and considering what is known of air movements, even at moderate elevations above the earth's surface, it may be assumed that these differences in pressure were accompanied with large differences of air motion; and if it is also assumed that the evaporation over the Southern Ocean is in all years fairly comparable in amount, the deficiency of rainfall over India in the winter of 1889-90 can be attributed to diminished lateral translation of vapour, owing to sluggish movements in the upper atmosphere.

3. "On the relative prevalence of different winds at the Royal Observatory, Greenwich, 1841-1889," by Mr. W. Ellis, F.R.A.S. The author gives the following as the average number of days of prevalence of different winds for the forty-nine years, 1841-89, as derived from the records of the self-registering Osler anemometer:—

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	CALM.
40	45	27	22	35	106	46	22	22

4. "On some recent variations of wind at Greenwich," by Mr. A. B. MacDowall.

5. "On the action of lightning during the thunderstorms of June 6th and 7th, 1889, at Cranleigh," by Capt. J. P. Maclear, R.N. The author examined a number of trees which had been struck by lightning during these thunderstorms, and found that those which were struck before the rain fell were shattered, while those which were struck after the rain commenced were simply scored, with the bark blown off. It seems that during rain every tree is conducting electricity, and a disruptive discharge takes place where the conductor becomes insufficient. This depends on the position of the cloud, the amount of foliage on the tree, its condition of moisture, and its connection with running water.

THE DEATH'S HEAD HAWK MOTH.

PROMINENT amongst our British insects is the death's head moth (*Acherontia atropos*). Few species have been more frequently figured and described, though it is not what we should call an abundant insect anywhere, but in some seasons it has occurred numerous within localities of moderate extent. It is not only our largest native moth, it is also the largest insect we have, and I might add the heaviest, not, however, by any means the strongest, for many beetles of less size can display more muscular power. Still, it is energetic enough to make vigorous efforts to get free if, in the moth condition, one be held in the hand, and, like others of the hawk moths, it can probably fly a considerable distance, and mount to some height. Those who have seen it on the wing describe its movements as not particularly rapid; this is accounted for by the weight of the body. It has frequently been referred to in books and journals as an injurious insect while in the caterpillar state to some cultivated plants, specially to the Potato, but though from its size it is a considerable eater, the death's head has seldom been common enough here to be really mischievous. But the fact is, that though the insect has been much written about, we are very ignorant concerning its history even now, and there are other instances of a similar kind with the death's head moth, this is partly explainable by its nocturnal, somewhat peculiar habits. Amongst the host of gardeners who are readers of this Journal there are many thoughtful, observant men, and it may come in the way of some of them during this summer and autumn to throw light upon the career of this notable insect, thereby conferring a boon on science, also adding to the amount of popular knowledge. Even yet, in spite of educational progress, the moth is regarded in some rural districts with superstitious alarm on account of its size, sombre colouring, and the singular mark upon the thorax, which has a fanciful resemblance to a skull and cross-bones. (Several allied species occurring in warmer countries have a mark of the same kind, and our death's head is much more common in Asia and Africa than with us, though its habits have not been reported upon fully by resident naturalists there). Another circumstance imparting a weird character to the insect is its power of producing a sound, compared by some who have heard it to the squeak of a mouse. It is thought to be caused by the vibration of small drum-like membranes one upon each side of the body, and concealed by downy hairs. The late Mr. Wood, in his vivacious way, has depicted the scene of consternation in a village churchyard when the retiring congregation stood awe-stricken round one of these moths which was at rest on the path till a farmer of heroic soul strode forward and crushed the terrible object beneath his iron-shod heel.

It is with the caterpillar that gardeners are most likely to make acquaintance. This varies in appearance somewhat; there are two distinct varieties, and a third has been described by some naturalists. When full grown it is larger than any other British species, being nearly

5 inches in length, but at an early age it may be easily distinguished from the rest of the hawk-moth caterpillars by the horn, which is roughened or tubercled, and is bent down at the tip, then turns up again; the ground colour is either pale green, with violet stripes, or a deeper green, and stripes of olive brown. The period of feeding seems to extend from July to September, and by general observation this caterpillar feeds chiefly at night. If low plants are its resort then it bides by day amongst the cloods, or goes partly under the earth, or should its food be a shrub or hedge plant, then it will conceal itself amongst the foliage till after sunset. In some parts of England this caterpillar is called by the ridiculous name of "lokus," or locust, when it is found by the workers in Potato fields, and it is from these the insect is most frequently reported, though seldom discovered by entomologists, owing to the difficulty of carrying out a search. Labourers, of course, discover it sometimes while they are weeding or digging up the crop. Should the caterpillars be numerous in a small plot of course their presence is made manifest by the traces left after they have been feeding, but the species can scarcely be considered an enemy to the Potato, though it is evidently with us the chief food plant. It has been asked what was it before the Potato was introduced to this island, as the insect is undoubtedly native, and I conclude it was the Bitter-sweet or Woody Nightshade of our hedges, upon which it is now sometimes found. Possibly it also fed on the Black Nightshade (*Solanum nigrum*), a common plant of waste ground, and which is a garden weed frequently on some soils. Specimens, according to report, have been taken on the Snowberry and the Tea Tree; I rather doubt its occurrence on Privet or Ash, though a friend noticed once on a hedge in a London square a large caterpillar which, by his description, corresponded with this species. That the Jasmine is visited by it has been asserted by both gardeners and entomologists, but I have never found it upon this plant, nor received a specimen taken therefrom. The moth has been taken hovering over Jasmine, attracted by the scent doubtless; its tongue, however, is so short that it is unable to reach the honey in deep corollas as do the other hawk moths.

I should be glad to hear (through the office) from any of our friends who may notice the death's head caterpillar this year, and who will state upon what plant it has been found, also any particulars of interest. It is said to be able when it chooses to utter a sound, the only British caterpillar that can, but the few specimens I have handled were certainly silent. Some have compared this to the snapping of an electric spark, and others say it resembles the noise made by the moth. At present it remains a doubtful circumstance in its history. When adult the caterpillar descends to some depth in the earth to assume the chrysalis state, and those that have fed up most rapidly emerge as moths in the autumn about October, but none of these deposit eggs. The remainder sleep on until the next summer, appearing in June usually.

To another mysterious circumstance in the moth's history I ask the attention of bee-keepers. Though the statement has been questioned, many persons have declared that in South Europe this insect enters bee hives to feast upon the honey there stored, the presumption being that it is unable to extract much direct from flowers. On this account it has also been called the bee tiger moth, and the conjecture has been thrown out that its noise serves to paralyse the bees, making them retire before it in alarm. Its body is so encased in down that we might suppose it could not easily be stung, were they inclined to attack it; still it has been stated that dead moths have been found in hives embalmed with propolis by the bees. It would be hardly possible for a death's head moth to enter any of the hives of modern construction, but the aroma of the honey might lead these insects to our bee hives in the hope of gaining access, as they might into those formerly employed. —ENTOMOLOGIST.

THE CUT FLOWER TRADE IN GLASGOW.

FOUR or five years ago the demand for cut flowers in Glasgow was amply met by a few pounds' worth, sent, perhaps, from the larger nurseries in England. Now the demand is something enormous, and has to be met by large quantities sent daily all the year round from France, Belgium, Holland, the Channel and Scilly Islands, and the large nurseries across the border. The gentle balmy breezes of summer visit the sunny South first, and the wily continental gardener has his flowers in the market in this country about the time that ours are getting over the torpor of the winter. Cannes, Nice, and most of the fashionable watering-places on the Riviera are rich in early Daffodils, which are sent to Glasgow and other towns along with the mails—taking about three days for the journey. They receive the utmost care in transit, and, being packed in special cases, are little the worse when they arrive. The cultivation of flowers must yield considerable profit when continental gardeners can send the result of their labours to this city, paying carriage of 20s. a cwt.—roughly speaking, a little over 2d. per lb.—and yet have a balance in pocket. The trade at the Scilly Islands, again, it is said, is fast becoming the mainstay of the population, who are making them literally one large garden; and Mr. Boyd, of Boyd, Barrow & Co., fruit brokers, South Albion Street, states that for the trade from these islands alone his firm requires over 2000 cases. English gardeners, however, make a speciality of a few varieties of flowers, which they force in glass houses in such quantities as to be able to meet the demand in most of the largest towns. All gardeners endeavour to have their blooms

ready for sale about Christmas or New Year, when large prices are got, and in consequence the brokers have a busy time of it then. Around London there are many large nurseries within a few miles as possible of the markets, and from one of these Mr. Boyd between the 2nd and 9th of the present month received no fewer than 455 dozen of white Roses alone.—(*Glasgow Evening News*).



DEATH OF MR. B. S. WILLIAMS.

JUST as we are going to press we learn with the deepest sorrow that the above great nurseryman passed quietly away, at Upper Holloway, at ten minutes to seven on Tuesday night this week, after a long and painful illness. Mr. Williams was widely known and esteemed at home and abroad for his high character and genial kindness to all with whom he came in contact. We believe he was about sixty-six years of age, and his father is still living. The funeral of our lamented friend takes place at Highgate Cemetery on Monday next, June 30th, at 12.30 noon, and it may be expected that a considerable number of horticulturists will attend on the occasion, for no one was more popular with all classes connected with gardening than Mr. B. S. Williams.

EVENTS OF THE WEEK.—To-day (Thursday) the Royal Botanic Society's second "Floral Parade and Feast of Flowers" will be held in the Regent's Park Botanic Gardens from 2.30 to 7 P.M. A Royal prize of twenty guineas is offered for the best of all exhibits, gold, silver, and bronze medals being also offered for various forms of floral decorations. With fine weather there will no doubt be a large and fashionable attendance, as was the case last year. On Friday, June 27th, the Rose and Pink Show will be opened at the Royal Aquarium, Westminster, and on the same day the British Fruit Growers' Association will hold a Conference on Strawberries at 5 P.M. Exhibits of Strawberries are expected from some growers in the principal districts. The Twickenham Show will be held on Wednesday, July 2nd, but is more fully noted in another paragraph.

— THE WEATHER IN THE LONDON DISTRICT has been quite summer-like as regards temperature during the past few days, but it has not been generally bright. The rain and heat together have advanced garden crops wonderfully, Peas especially, and Strawberries, though mostly late, are coming in rapidly.

— ATTENDANCE AT FLOWER SHOWS.—A correspondent, in directing attention to the number of visitors to the York Show, says it will be interesting to know if an attendance of 47,000 persons in two days has ever been exceeded at a flower show.

— MRS. MUIR CARNATION.—A correspondent sends us blooms under the above name of a very beautiful pure white border Carnation. They are large, with very broad, smooth petals, and not the slightest sign of pod-splitting. The variety seems to be an acquisition, and we expect to publish something more about it.

— THE twenty-first annual Show of the TWICKENHAM HORTICULTURAL SOCIETY will be held in the grounds of Orleans House, by permission of W. Cunard, Esq., on Wednesday, July 2nd next. The schedule enumerates seventy-one classes for plants, cut flowers, table decorations, vegetables, and fruit, and a most varied display is usually provided. The district is a good one, the exhibits of remarkably uniform quality, and the competition keen. The Hon. Sec. is Mr. J. J. G. Pugh, 2, Heath Road, Twickenham.

— EARLY POTATOES.—Mr. B. Grist, gardener to Lady Hamond Groeme, Norlands, Great Yarmouth, dug Sutton's Ringleader Potato on May 7th in the open border.

— **DEATH OF MR. W. H. BAXTER.**—Many who were familiar with the Oxford Botanic Garden in its old days will hear with deep regret that the veteran exhibitor, Mr. W. H. Baxter, is dead, and it might be said that part of the historical interest of that old garden has departed with him. Mr. Baxter until recently had charge of the garden, also of the University parks, but he relinquished the former responsibility a year or two since, and was then accorded a pension in recognition of his services. He continued, however, to act as Superintendent of the parks until six months ago, when his health began to fail, and after many weeks of severe prostration he died on June 19th last aged seventy-four years. Mr. Baxter was an amiable man with a wide and critical knowledge of plants, and was greatly respected in the city of Oxford. In early life he was engaged with Mr. J. C. Loudon, whom he assisted greatly in the preparation of some of his works. Mr. Baxter succeeded his father as Curator at Oxford, which office he held for a number of years.

— **EARLY STRAWBERRIES.**—I think it will now be generally admitted that Noble is not adapted for forcing purposes in this district. The verdict is against it. The plants set good crops, but the less said about the flavour the better, but as an early outdoor fruit it is unsurpassed. The crops here are very heavy, and the individual fruits excellent. I have heard doubts expressed as to its travelling properties, but I have not had the chance of testing it in this way. So much depends on this quality for a good market fruit that it would be very interesting to hear whether it is a good packing Strawberry. King of the Earlies is a capital variety here; it has excellent crops, particularly on the young plants. The flavour is a little too acid for some palates, but I deem it a first-class variety. The Captain did not get very favourably received here last season. It came such an ugly shape and the crop was poor, some growers discarded nearly all their plants, only keeping a few for further trial. This season it has practically redeemed itself, for it came very early, and the fruits are a splendid size, but in comparison with other varieties the crop is light.—**JAMES B. RIDING, Ware.**

— **ANOTHER ELECTRIC PEA.**—Messrs. James Carter & Co. desire us to announce that they intend adding to the varieties Telegraph and Telephon a new Pea to be called Phonograph, which they consider will electrify the vegetable world, but they do not say when they will touch the button for starting the talk of, or about, the new comer.

— **A ROSE fair in aid of the GARDENERS' ORPHAN FUND** will be held in connection with the Croydon Horticultural Society's Show on Wednesday next in the grounds of Brickwood House, Addiscombe Road, Croydon. Contributions of Roses or other cut flowers for sale will be thankfully received by the Honorary local Secretary, Mr. G. W. Cummins, The Grange, Wallington, Surrey.

— **GLOXINIAS.**—I am enclosing two or three Gloxinia blooms for inspection, also a leaf from one of the plants. I have grown them on a shelf near the glass in a temperature from 70° to 75°. The tubers were raised from leaves last year. Each plant has from eighteen to twenty-four blooms expanded. I should be pleased to hear your opinion of the same.—**A. CURRY.**—[The leaf is 8 inches long by 6 inches wide, and of great substance. The flowers are 3½ inches in diameter, and the examples represent good cultivation.]

— **PROPAGATORS—INFRINGEMENT OF PATENT.**—Mr. Charles Toope, Stepney, desires us to state that the suit instituted against him by Mr. T. G. Pascall for infringement of his patent pipe propagator was dismissed with costs by Mr. Justice Fry on the 19th inst., on the ground that the principle embodied in the propagator had been in common use for twenty or thirty years. The case was heard in February of the present year, when several witnesses were examined. Judgment was deferred, and owing to the illness of Mr. Justice Kay was not delivered till the date above named.

— **EMBRYO GROWTH IN LEMONS.**—I notice in your report of the meeting of the Royal Horticultural Society on June 10th, that Mr. Henslow showed specimens of embryos which had begun to germinate within the fruit of Lemons. This was a very common occurrence that came under my observation when in the island of Madeira a few years ago. I also frequently found the tree carrying ripe fruit in one direction, with half-ripe fruit and blossoms in another, indirectly showing that there was no long period of rest for this plant in that climate.—**H. SHARMAN.**

— **WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.**—The first monthly meeting of this Society was held on the 17th inst. in the school room, Church Street, the Rev. A. E. W. Lofts presiding. The attendance was very satisfactory. Decorative Pelargoniums, Peas, Cabbages, Turnips, Lettuces, and Roses were staged by Messrs. Fulford, Riding, and Osborne. A paper entitled "Vegetable Gardening in June" was read by Mr. W. Pavey, which proved very interesting and evoked a discussion by the following members:—Messrs. Anderson, Riding, King, and Osborne. A hearty vote of thanks was accorded Mr. Pavey for his paper, and a similar compliment to the Chairman ended a very successful meeting.—**JAMES B. RIDING, Hon. Sec.**

— **EARLY POTATOES IN IRELAND.**—I have been interested in your notes on the Potato crop in the island of Jersey, and cannot but think with Mr. Hartland, Cork, and others, that the south coast of Ireland could be utilised as a formidable competitor to the Channel Island culture of this welcome vegetable if some enterprising commercial philanthropist could see his way to start the system. For years, though considerably inland, and without any effort, I always have fine Potatoes the first week in June. Mr. Weller, head gardener to Sir Croker Barrington, tells me to-day he has been digging them out in the open for table use every day at Glenstal Castle, Limerick, since the 15th May. I fancy an expert with the earlier varieties could have them fit to send to Covent Garden Market the first week in May planted along the warm southern slopes of the south coast.—**W. J. MURPHY, Clonmel.**

— **MR. JOSEPH MALLENDER** sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, NOTTS, FOR MAY:—56 feet above mean sea level. Mean temperature of month, 52.4°. Maximum on the 24th, 73°; minimum on the 1st, 29.1°. Maximum in sun on the 22nd, 127.4°; minimum on the grass on the 1st, 23.3°. Mean temperature of the air at 9 A.M., 54.7°; mean temperature soil 1 foot deep, 52.9°. Nights below 32° in shade two, and on grass eleven. Sunshine, total duration in month 198 hours, or 41 per cent. of possible duration. We had three sunless days. Total rainfall, 3.15 inches. Rain fell on twelve days. Wind, average velocity 8.4 miles per hour; velocity 400 miles on one day, and fell short of 100 miles on three days. Approximate averages for May:—Mean temperature 50.6°. Sunshine, 175 hours. Rainfall, 1.93 inch. A fine mild month, with a few sharp ground frosts at the beginning, and a week of thundery and showery weather from 5th to the 12th, which did a great deal of good.

— **THE ESSEX FIELD CLUB.**—A joint meeting of the Club and the Gilbert Club at Colchester will be held on Saturday, July 5th, 1890. "The principal object of the meeting is to afford to members of the Gilbert Club and the Essex Field Club and any ladies and gentlemen interested in the history of science, and the parts filled by Englishmen in its inception and progress, an opportunity of visiting the birth-place, death-place, and last resting-place of the founder of the science of electricity, one of the first men in our history who caught hold of and pursued the true methods of questioning Nature, and an Essex worthy, entitled to take rank with Ray among the great pioneers of true knowledge. The party leave Liverpool Street Station by the 10 A.M. (express) train, arriving at Colchester at 11.9. [There is an earlier train at 9.3, which stops at most stations. Local members are requested to consult the July time tables for fitting train service]. Assemble at the Castle and Museum at 11.30, where the Hon. Curator, the Rev. C. L. Acland, will point out objects of interest. The party will then visit, under the direction of Dr. Henry Laver, F.S.A., Gilbert's House (anciently known as "Tymperleys," or "Tympornell's"), by kind permission of the owner, and Holy Trinity Church, where is Gilbert's monument, erected by Ambrose and William Gilbert, 'in token of brotherly love.' The Abbey Gate, St. Botolph's Priory, the Roman Walls, and other objects of interest may also be visited under Dr. Laver's and Rev. C. L. Acland's guidance. Luncheon will be served at the Red Lion Hotel, High Street, at 1.30 P.M. The chair will be taken by the Right Hon. Lord Rayleigh, M.A., D.C.L., LL.D., Sec. R.S., &c., Vice-President of the Essex Field Club and the Gilbert Club. Conveyances will be at the Town Hall at 2.30 to drive the party to the vale of Dedham on the Stour, "Constable's Country," which inspired him with a love for simple nature, and he portrayed its scenery in many of his paintings. 'I love,' he said, 'every stile and stump and lane in the village. As long as I am able to hold a brush I shall never cease to paint them.' Walk by the river's side to Flatford, where he was born

on 11th June, 1776, the second son of Golding Constable, the miller. The whole beautiful countryside is interesting to every lover of art, for here was the birthplace of English landscape painting. Return to Colchester about 6.30. His Worship the Mayor (Asber Prior, Esq.) will receive the Societies at the Town Hall at 7.30 P.M. [Morning dress.] During the evening the following lecture will be given:—'The Early Magnetic Experiments of Gilbert of Colchester,' by Professor Silvanus P. Thomson, D.Sc. The lecture will be illustrated by experiments and lime-light pictures. A complete set of all the editions of Gilbert's writings will be exhibited."

STRAWBERRY NOTES.

It is clear that Strawberries need a thorough change occasionally. It is a great mistake to continue working up plants for forcing and new plantations from the same stock for a number of years in succession. It often happens that there is not much choice in moving them about to different positions in the garden. For a dozen years or more we were confined to two or three plots for this purpose for convenience in watering, and the plants failed to grow with that vigour they possess when placed on fresh ground. The old Vicomtesse Hericart de Thury on a Vine border that to my knowledge had never been occupied with Strawberries grew from the first very luxuriantly, and carried a heavier crop of fine fruits than two-year-old plants on ground previously occupied. For years we prided ourselves on growing this variety well in pots. When it failed in other gardens near us, or at least only produced small fruits even by careful treatment, with us they swelled to a large size. This being the favourite variety we grew considerable quantities, and during the past three years have prepared no less than 1000 plants of it alone. For the past four or five years they have been gradually decreasing in vigour, and it must now be discarded for a time.

We long regarded this variety in the most favourable light for early forcing, its one fault being incapacity to produce its flower spikes well above the foliage. Keens' Seedling will be grown for the first supply in the future; it is of stronger constitution, throws up its flowers well, and is less likely to have too much water. Vicomtesse needs the most careful treatment in this respect early in the season, and it has a strong dislike to bright light. After the end of March, or even before, the fruits will swell more quickly and to a larger size when they are turned from than to the sun. It is a mistake, however, to expose the fruit of any variety on shelves close under the glass to the full force of the sun. If they do not become a prey to yellow thrips they become hard, discoloured, and fail to swell satisfactorily.

Very small pots are not advisable, even for the earliest. Those 5½ inches in diameter are large enough for Vicomtesse Hericart de Thury, while the larger growing varieties should have 6-inch pots. Early runners in small pots are often useless for forcing, for if pushed on, with a view of developing them thoroughly and maturing them for an early rest, the plants invariably show their flower spikes prematurely. Early runners of Vicomtesse and even of President are very liable to do so if confined to one crown. This must be avoided, for nothing is gained by having plants ripened in early autumn. Plants of this nature very rarely do so well as those that have bold well-developed crowns and large fully developed leathery leaves, but without further signs of ripening.

For general purposes, and for the main crop in pots, there is perhaps no Strawberry equal to the true old form of President. There are several varieties of this Strawberry, some of which are neither useful for pots nor for growing outside. The true old form is nearly as early as Vicomtesse Hericart de Thury, and when well grown will carry a heavy crop of large well flavoured fruits. It is a certain setter and a free grower, sometimes liable to mildew, but not to such an extent as Sir Joseph Paxton. President does well on most soils, but on light land it is liable to run out, the same as Keens' Seedling, and refuse to fruit. If grown on the two-year system, that is one year for yielding runners for forcing, and the next for fruiting, it can be thoroughly relied upon to yield heavy crops.

None is perhaps more largely grown for market than Sir Joseph Paxton. It appears well suited for dry, gravelly, and light soils. It has a fine shapely fruit of good colour and size, and is unsurpassed in flavour. Although it is much subject to mildew when grown under glass in pots, we cannot well discard it from the list of varieties suitable for forcing.

However carefully the plants are grown, they would often be affected by mildew so badly as to ruin the crop unless checked at once. Nothing surpasses syringing the plants thoroughly with a solution of sulphur and water, about a 3-inch potful of sulphur stirred into 3 or 4 gallons of water will do. It should be allowed to

remain upon the plants about three days, or longer in the absence of bright sunshine. The ordinary syringing will wash the sulphur off, and when the fruit is ripe scarcely a trace will be found.

James Veitch does well in pots, and swells its fruit to a large size if given plenty of time. It is a mistake to hurry this variety, and if grown in a close moist atmosphere the fruit is certain to decay. It is also flavourless if grown in a moist close atmosphere; in fact, a few hours of close confined treatment will spoil its flavour. If placed in a cool house early in February, and allowed to develop under cool airy treatment, the fruits will swell to a large size, and there will be no fear of damping, while the flavour and colour of the fruit will be better than when the opposite system of treatment is followed.

Dr. Hogg is a good late variety, but does not succeed on all soils. It is worth a place outside as well as in pots. When grown in the latter it will often fail to set, and the fruits soon decay if hurried. Grown in the same way as James Veitch it will not fail to be highly appreciated.

It is a common practice, but it is a mistaken one, to leave late varieties outside until May, and then have to hasten them forward to precede those grown outside. If placed inside earlier, and allowed to develop slowly, the results would be more satisfactory.—WM. BARDNEY.

EYTHROPE.

TASTE in garden design and planting has furnished a prolific subject for essayists, and so diverse have been the opinions expressed by those who rank as authorities, that it would appear difficult to arrive at any general principles as guides to the inexperienced. A superficial examination of the works treating upon the subject conveys that impression, but a closer study both of books and natural scenery tends to show the divergence is not so great as might be imagined, and it is quite possible to generalise to some extent. The most experienced in such work—the landscape gardeners themselves—have chiefly assisted in promoting differences of opinion, for they have often become the exponents of particular ideas, and by adopting a certain uniformity of style, regardless of situation, they have rendered themselves open to the charge of mannerism and narrowness of views. This occasioned all the criticism to which the earlier landscape gardeners were subjected. They identified themselves with particular methods of treating ground intended for gardens or parks, and instead of assisting in softening or modifying the extremes of the systems advocated, they too often accentuated their differences designedly, and with the worst effects. A contest has thus been waged between the advocates of the artificial and the natural systems respectively, and until recent years the former may be said to have prevailed. It is strange that in the earlier ages of civilisation, just when men are emerging from a state of semi-barbarism, the natural beauty with which all are familiar has the least attraction, the whole attention of the more advanced is turned to art and artificial productions. The same spirit is seen in the gardens which the ancients admired. Elaborate architectural ornaments and severe formality was their distinguishing characters. These constituted the foundation of the geometrical style of gardening which has ruled the civilised world so long, and found special expression in the Italian and Dutch style introduced to this country.

But with advancing civilisation another stage is reached, when relief is sought from the productions of art in the freshness, the informality, and the charms of natural scenery. So it is that the school of what may be termed Nature's landscape gardeners has been increased in modern times, and, like all innovations, the tendency at first was to go to the other extreme. Efforts were made to chase from the garden all semblance to art, introducing Nature in her wildest form, with picturesque results at times, but also frequently with but little of the quiet beauty that constitutes one of the great pleasures of a garden. The wiser and the better course has been adopted in still more recent landscape work—namely, a modification of the two extremes, recognising the fitness of the artificial style for certain positions, and especially near to houses and formal buildings, but allowing the natural method to predominate to the utmost. The careful study of this combination has resulted in the production of some of the most beautiful gardens that adorn our little island, and render it pre-eminent in the world of horticulture. Diversity of aspect, united with the repose so characteristic of a truly English landscape, sufficient variety in the trees, shrubs, and plants employed to prevent monotony, careful avoidance of all straining after effect, and perfection in the "art that conceals art" give us what no one can fail to admire—a genuine natural English garden.

Favoured with a special invitation from Miss Alice de Rothschild to inspect what she was pleased to term her "little garden" I journeyed recently to Aylesbury, and thence by road to

Eythrope, where I found one of the most charming unpretentious establishments it has ever been my good fortune to visit. The Vale of Aylesbury on a warm but slightly hazy June morning was, after the rains, looking at its best, exceedingly fresh and luxuriant, while the Chiltern Hills in the distance gave a little more character to the scene than most of our low southern hills afford. The drive of about four miles from the quaint old town of Aylesbury under such circumstances was most agreeable, and a fitting preparation for the pedestrian exercise to follow under the charge of my lady guide. Crossing an antiquated stone bridge gives the first view of the River Thames and its beautiful boundary, the gardens and grounds of Eythrope; and passing a bijou lodge a fine curving drive brings us to the house familiarly known as the Pavilion. There Miss Alice awaited me, and under her instructive guidance I commenced a most pleasant inspection of the garden which has been gradually formed in accordance with her tasteful direction. Fourteen years ago Eythrope, though possessing considerable historical interest, dating back to an early period, having been originally the site of an ecclesiastical establishment of some kind, was in a state of neglect; in fact, it is said to have been little more than a swamp and a wilderness, yet the situation possessed what a famous landscape gardener would have termed "great capabilities," especially for a summer residence, and it was by a development of these qualities that the present garden has been obtained. Few have the satisfaction of seeing the full realisation of their ideas in what may be considered a comparatively short time, but Eythrope has not a suspicion of newness about it. If we were told it had been formed a hundred years since it could be easily believed, and this is one of the many instances the place affords of the thoughtful application of art.

In one short visit it would not be possible to grasp all the details of such a garden, but a general review of its chief features may be attempted, and then some of its specialties will be worth attention. First then, to commence with statistics, the estate comprises about 1550 acres, 60 of which are devoted to the garden, and the remainder constitute the farm and park, the latter an undulating and far-reaching expanse of rich green turf, divided from the garden by a sunk fence, and well stocked with cattle. The picturesque and climber-clad Pavilion (fig. 79) stands upon a slight eminence, and therefore commands a view over the greater portion of the garden with delightful vistas across the river into the park. To the south and east a wonderful lawn slopes from the house, and this alone is a remarkable feature. It covers a space of 20 acres, not in one unbroken expanse, but relieved at suitable positions by shrubberies, clumps of Rhododendrons, specimen trees, and flower beds, and the whole is formed of a soft, close, fresh, green turf in excellent keeping, and quite in accord with the general style of the garden.

THE RIVER.

One of the chief natural features of Eythrope is the river which forms a partial boundary to the garden on two sides, the east and the south, and full advantage in all respects has been taken of this. An extent of over a mile and a half has been obtained, one portion to the south has been widened into a lake-like expanse, islands have been formed or improved, the banks have been planted, and the whole managed with the utmost skill. The result is a thoroughly natural piece of water, as though one of the charming reaches of the upper Thames had been transferred bodily, with numerous added but appropriate attractions. There are no bare and formal banks here, such as in some older gardens have caused the rivers to be stigmatised as canals and the lakes as tanks. Rigid lines and monotony in every respect have been carefully and consistently avoided, and I do not remember ever seeing, either in Great Britain or on the Continent, so successful an example of tasteful natural water management on the same scale. The journey by boat from the garden steps to a little "old English" tea house, and then to the bridge and back, gives an excellent idea of what has been done, and also affords some pleasing peeps of the garden and the Pavilion. The beds of Rhododendrons and Azaleas have an especially bright effect in the distance, while nearer at hand is a bed of brilliant Poppies with a background of Golden Yews, which can be seen for some distance along the river, and constitutes a charming picture in itself. The grand rich flowers of the Oriental Poppy and the lighter shade of the variety Prince of Orange harmonise well together with the Yews, the bright green of the turf between the plants and the water serving as an agreeable foil to such a mass of colour. Upon the banks, either overhanging or providing welcome shade, are graceful Willows in abundance and variety, vigorous Horse Chestnuts and Maples, with plentiful flowering shrubs, extend back from the river, giving depth and character to the scene. At the margin of the banks, or in the water itself, the yellow English Iris flourishes in grand clusters with the towering Giant Bulrush, and countless other smaller water plants. The Japanese,

the Spanish, the English, and German Irises find suitable places, and peep out at irregular intervals along the banks; little groups of Rockets and other flowering plants are also seen at different points. Special efforts have been made to impart as much variety as possible without descending to trivialities, and more than ordinary success has been achieved, for there is nothing to tire the eye, there is sufficient motion in the water to prevent stagnation, and the islands which add so much to the effect of a stream or lake when well managed have been rendered picturesque without losing their agreement with the surrounding scenery.

THE ITALIAN AND DUTCH GARDENS.

But there are other features to be noted, and we must hurry along, or my notes will not be compressed within reasonable limits for one article. The principles referred to in the few introductory words have been acted upon consistently throughout, and though Miss de Rothschild admits a greater preference for the natural style, she yet rightly considers that in a garden of sufficient extent the artificial should also be represented if suitable positions can be provided. Thus we find near the Pavilion an Italian garden with bold angular beds in the geometrical style, but not in an intricate design, and comparatively few varieties of plants are used. Masses of Pelargoniums—Henry Jacoby, Mrs. Turner, Black Douglas, and the Pink or Salmon Vesuvius—constitute the leading features, furnishing a very rich and imposing colouring. Near by are large banks of Rhododendrons and Azaleas, which were only just beginning to lose their flowers. In some of these beds and near the house a succession of Lilics is provided, which prolongs their floral attractions far into the summer.

Along a terrace and path to the east of the Pavilion we came to the carpet beds planted in neat and effective designs, novel conical mounds of Pelargoniums, and a gigantic bird-like design raised as a pedestal, the framework formed of iron, filled with soil and moss, and closely planted with *Alternantheras*, *Lobelias*, and *Spergula* to represent the colouring seen in some tropical birds. A bed of deep blue *Violas*, with the silver-edged *Princess Alexandra* Pelargoniums, and margined with *Crystal Palace Gem*, was attractive near this; also some fine beds of *Fuchsias*. Upon the other side of the lawn is a series of similar beds in a hollow below the level of the turf, Pelargoniums, *Centaureas*, and *Tuberous Begonias* being employed chiefly. Then there is one other formal department to be noticed, the Dutch garden, near the gardener's house, and seen from a raised terrace of turf the small beds have a neat and varied appearance, and it is worthy of remark that *Clianthus Dampieri* is being there tried planted out, and seems to be established.

THE WILDERNESS, MEXICAN, AND WILD GARDENS.

In a garden so essentially natural as Eythrope it is a relief to turn even from the moderate representation of the formal to something of a freer and more picturesque character. About an acre of ground is devoted to the wilderness, which is only a short distance from the Pavilion, and presents a piece of wild nature that is at any time in the summer restful and shady, but which in the early spring must be delightful. Tall and spreading trees are plentiful, having been preserved from the older garden, the undergrowth has nearly all been planted, but the shrubs and young trees are now so well established, and have made such vigorous growth, that they form a dense thicket of a thoroughly unconventional character. Narrow irregular moss-covered walks penetrate this in all directions, and winding about in a mazy, but indeterminate plan, they convey the idea that the extent is much greater than it really is. Beneath the shade of trees and shrubs *Primroses*, *Blue Bells*, and *Violets* flourish, and the seed vessels and flower stems prove what a floral feast has been provided earlier in the season. Here and there a partial clearance has been made to bring into bolder relief some handsome old tree, and several grand Scots *Firs* and *Abeles* rear their heads on massive stems to a great height. *Ferns*, too, in countless thousands luxuriate in moist seclusions of this wilderness, all collected and introduced from distant shires, for Bucks is not a ferny county.

The Mexican garden is devoted to groups of succulent plants chiefly, and conspicuous there are Alp-like mounds clothed from base to summit with the silvery *Antennaria*. The wild garden comprises an undergrowth of *Ivies* in about forty varieties, rambling about in the greatest freedom, and a mixture of shrubs with various herbaceous plants in unrestrained profusion, clumps of *Funkias* telling effectively amongst them.

ROSES.

A chapter might be devoted to the Roses at Eythrope, for they rank as one of the special features, and they are evidently great favourites. The rather heavy soil appears to suit them extremely well, their growth, foliage, and flowers affording most satisfactory

evidence that their requirements are amply supplied. Between 300 and 400 varieties are included in the collection, not of Hybrid Perpetuals or Teas alone, but of all sections, from the graceful old rambling Roses of the Ayshire type, through every grade of the most refined florists' groups. We see spacious beds and banks of

Austrian, and the richest of all the Copper Austrian Briars, flourishing and flowering in their fullest native freedom. Pink Roses are especial favourites, particularly La France and Captain Christy, a long bed containing some hundreds of plants being devoted solely to the supply of cut flowers. There is also a spacious Rose

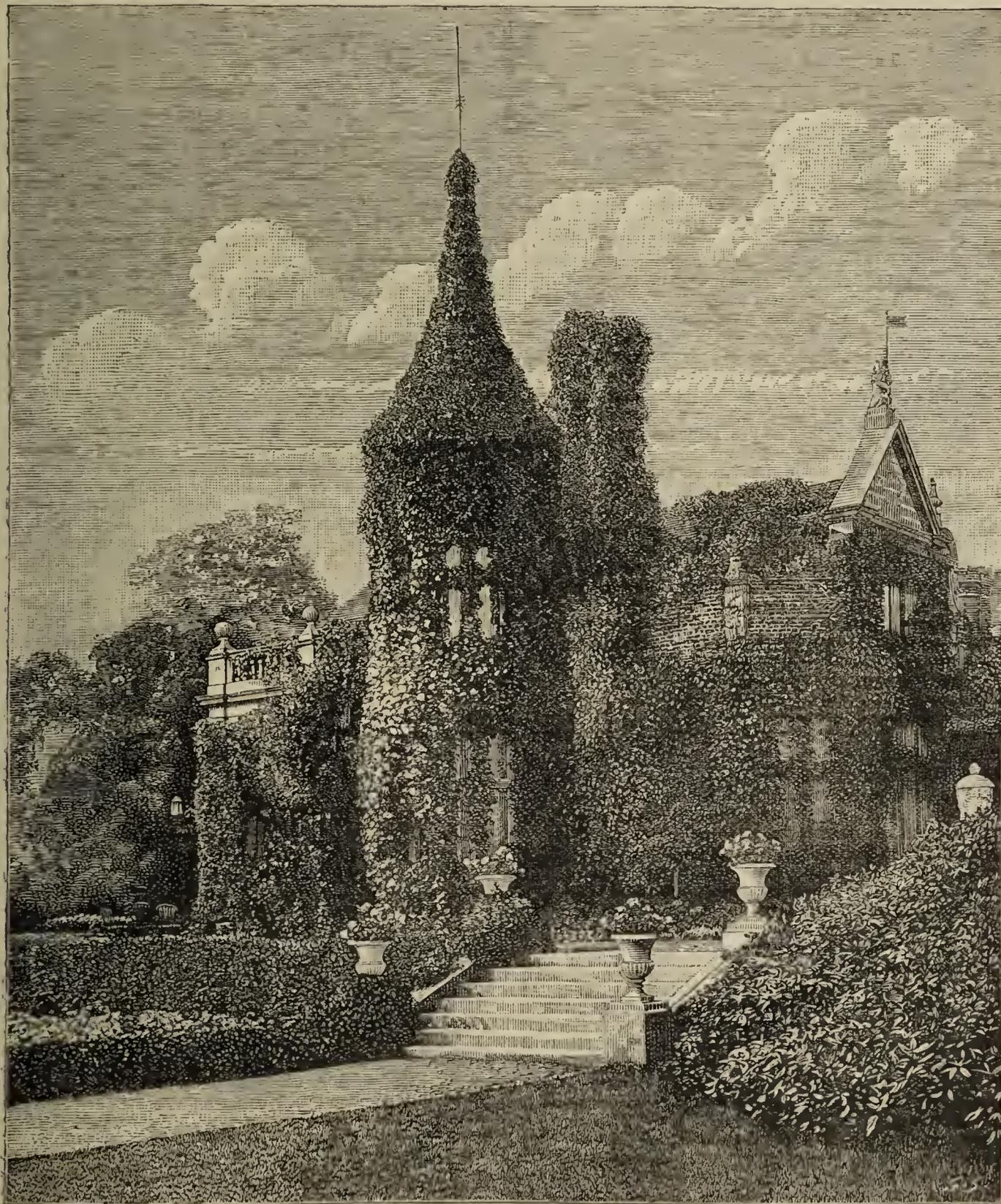


FIG. 79.—THE PAVILION AT EYTHROPE.

luxuriant Roses in all directions—trellises, arches, and alcoves festooned with the climbers, already becoming wreathed with charming little flowers. The porch and the walls of the Pavilion and other buildings covered with delicate single Roses and Briars, and clumps in shrubberies or borders of the Persian Yellow, the

house of ornamental design, in which Maréchal Niel, William Allen Richardson, and Sunset are planted out, and cover the roof with their growth and flowers; the other portion of the house being filled during winter with Roses in pots, while the surrounding beds are occupied with China Roses.

In connection with the Roses, which assist very materially in the matter, may be mentioned the fact that climbing plants are employed most freely in covering walls and buildings of all kinds where a bare and hard surface would otherwise be visible. The Pavilion itself is in this way completely wreathed in the growth and foliage of Ivies, Ampelopses, Clematises, Roses, and many other plants, the same principle being followed with regard to anything else of a conspicuous character. Some extremely old Apple and Pear trees preserved from a former orchard are in this way draped with climbers, and were charmingly effective.

TREES AND SHRUBS.

As already noted many fine old trees have been retained from the former garden, Scots Firs, Abeles, and Elms, especially some of the latter, having evidently formed part of an avenue or hedge, such as is often seen where old monastic institutions have stood. These furnished an invaluable framework. Planting has been carried out extensively, large Horse Chestnuts especially having been most successfully transplanted. Most of them are now so well established that it is scarcely possible to believe they have only been planted four or five years, specimens 40 to 60 feet high rivalling some of their neighbours that have occupied the ground for at least a hundred years. The Horse Chestnuts were large trees when moved, but the work was done carefully, and they do not seem to have suffered in the least. Conifers have also been planted, and some of the hardier sorts thrive, but the low winter temperature and moisture are too severe tests of the delicate Firs. *Abies Pinsapo* succeeds capitally, and several good specimens were noted, *Wellingtonias* are also making grand trees, especially in one part of the garden, where they have been found to be thoroughly at home, and a large clump has been planted.

With regard to the shrubs, an extensive varied collection has been formed of all that were likely to prove hardy. Much taste has also been displayed in the arrangement of these with regard to colour effects when in flower. Coloured foliaged plants are used liberally, the Golden Yews and Golden Elders being special features, assuming a richness of hue that is seldom seen, and lighting up several vistas and nooks in a surprising manner. It is very easy to plant such shrubs as these in places where they would not be merely lost, but where they would have a great disturbing effect in the general harmony. This has been skilfully avoided, and in nearly every case this effect has been brightened by flowering plants of a suitable kind in their immediate neighbourhood.

GLASS HOUSES.

So much space has been devoted to the other departments that little can be now said about the houses. There are three handsome span-roofed structures, each 100 feet long by 18 feet wide, erected by Messrs. Halliday & Co. of Manchester, and admirably adapted for plant culture. One is in three divisions for Orchids, a grand genuine collection being grown, but a bank of *Odontoglossum vexillarium* is wonderfully fine, about 150 strong plants being in flower, some with ten racemes each, the flowers large, and varying from white to the deepest rose. Upon the other side of the house *Epidendrum vitellinum* is flowering well, and contrasts markedly with the *Odontoglossums*. The next house is devoted to Carnations, of which there are about 1500 plants in the best varieties as obtained from Mr. Turner of Slough, and a number of very promising seedlings raised at Eythrope. One of the best dark varieties is *Maestro*, and *Mary Morris* is found to be the best Pink, both in pots and out of doors. One thousand grand plants of *Carnation Souvenir de Malmaison* occupy the adjoining house, all about nine months old, in 8 and 10-inch pots, fine bushy specimens, with massive flowers of the pink, red, and white varieties. Five other span-roofed houses, 90 feet long by 14 feet wide, are devoted to propagating purposes. The Rose house has already been mentioned, and then there is a *Pelargonium* house, in which the Ivy leaf variety *Souvenir de Charles Turner* is just now the chief feature, and is greatly valued for its freedom and bright colour.

It only remains to add that the stables, bothies, &c., are rendered an ornamental addition to the garden instead of being objectionable, as is too often the case. They are low buildings in the Norman English style, the soft reddish brown tiles having a cheerful, yet not too conspicuous an appearance. The building is in the form of a quadrangle with convenience for all the employés; the bothy has a comfortable reading room well supplied with books and papers, and is in every respect a model. The gardener's house is in a similar style, and here it should be remarked that Miss de Rothschild speaks highly of the services rendered her by Mr. Gibbs in the extensive work accomplished during the past nine years.

This for the present must conclude my notes upon what proved to me an exceedingly pleasant and instructive visit.—LEWIS CASTLE.



NATIONAL ROSE SOCIETY.

As announced some time ago, the National Rose Society made arrangements with the Royal Horticultural Society to provide a series of classes for Tea, Noisette, and Moss Roses at the meeting of the Committees on June 24th. Prizes ranging from £2 10s. to 10s. were offered in ten classes, including special prizes contributed by Dr. R. Hogg, Mr. F. Cant, Mr. W. H. Fowler, Messrs. G. Bunyard & Co., Messrs. Paul and Son, and Mr. C. Grahame. The competition was keen in nearly every class, and the quality of the blooms unusually fine for the first Show of the season. Rarely is so grand a display of Tea Roses seen even at the large shows, and all concerned in the organisation of this Exhibition have reason to be satisfied with the result.

The following classes were all for Teas and Noisettes, except where otherwise stated. The first class was for twenty-four blooms in not less than twelve varieties, or more than three blooms of any one variety, and in this, amongst seven competitors, F. W. Flight, Esq., The Cornstiles, near Winchester, won the leading honours with grand fresh blooms of the undermentioned varieties—The Bride, Madame de Watteville, Madame Cusin, Catherine Mermet, Souvenir d'Elise Vardon, Hon. Edith Gifford, Innocente Pirola, Ethel Brownlow, Jules Finger, Belle Lyonnaise, and Madame Willermoz. The second prize was secured by A. H. Gray, Esq., Beaulieu, Bath, with good blooms, the back row comprising very heavy examples of *Comtesse de Nadaillac* and *Catherine Mermet*. R. L. Knight, Esq., Sittingbourne, took the third place, his finest bloom being a grand specimen of *Souvenir d'Elise Vardon*, for which a silver medal was awarded.

A class was also provided for twelve blooms, not less than six varieties or more than two blooms of one variety, and of the ten exhibitors the Rev. H. A. Berners, Harkstead Rectory, Ipswich, had the best blooms, winning the leading prize easily. The varieties shown were the Hon. Edith Gifford, *Comtesse de Nadaillac*, Marie Van Houtte, Jean Ducher, *Devoniensis*, The Bride, Madame de Watteville, Princess of Wales, Catherine Mermet, Souvenir d'Elise Vardon, and Amazone, all extremely beautiful blooms. Mr. O. G. Orpin, Colchester, was second, Catherine Mermet, *Etoile de Lyon*, Hon. Edith Gifford, and *Maréchal Niel* being conspicuous in his stand. The Rev. A. Foster-Melliard, Sproughton Rectory, Ipswich, was a close and good third.

With six blooms, not less than three varieties, E. Mawley, Esq., Berkhamstead, won premier honours with beautiful blooms of *Souvenir d'un Ami*, Anna Ollivier, and Jean Ducher, two of each. C. E. Cuthell, Esq., Box Hill, was second, and the Rev. H. B. Biron third. Seven exhibitors staged six blooms of one variety, the Rev. F. R. Burnside, A. H. Gray, Esq., and the Rev. A. Foster-Melliard being the prizewinners. Another class was provided for six varieties of Teas, three blooms of each, and the prizes were won by Mr. Gray; the Rev. F. Page Roberts, Scole; and S. P. Budd, Esq., Gay Street, Bath.

Class 6, for twenty-four Teas, distinct, was the only one devoted to nurserymen, and all the prizes were offered by Dr. R. Hogg. The competition was good, six admirable collections being staged, but the Judges decided that Mr. B. R. Cant, Colchester, had the best, and he accordingly took the premier prize. His flowers were extremely fine, fresh, and of great substance, the varieties being *Rubens*, *Caroline Kuster*, *Devoniensis*, Madame de Watteville, *Niphetos*, *Cleopatra*, *Souvenir d'Elise Vardon*, *Souvenir d'un Ami*, *Innocente Pirola*, Madame Cusin, Princess of Wales, *Maréchal Niel*, *Souvenir de Thérèse Levet*, Ernest Metz, Jean Ducher, the Hon. Edith Gifford, Madame Hoste, *Comtesse de Nadaillac*, Madame Lambard, Marie Van Houtte, Anna Ollivier, Madame Willermoz, The Bride, and Princess Beatrice. Messrs. G. Prince, Oxford, and F. Cant, Colchester, followed closely in the order named. With twelve Teas Messrs. D. Prior & Son, G. Prince, and B. R. Cant were the prizewinners, Messrs. Prince and Paul & Son being first and second with Moss Roses, a beautiful class, the prizes being offered by Messrs. G. Bunyard & Co.

An exceedingly strong class was that for twelve Hybrid Perpetual Roses, not less than eight varieties, as a dozen competitors entered, and there was comparatively little difference between the stands. Mr. J. Brown, gardener to Mrs. Waterlow, Great Doods, Reigate, took the lead with handsome examples of Mrs. Baker, Marie Cointet, Duchess of Bedford, Capt. Christy, Duchess of Vallambrosa, Madame I. Perriere, Madame G. Luizet, A. K. Williams, Lady Mary Fitzwilliam, Marquise de Castellane, and Monsieur Noman. Messrs. Bradbury and R. E. West were second and third. Graceful baskets of Roses won the first and second prizes for the Rev. H. B. Biron and Miss Agnes Bloxam, Eltham Court.

PRESENTATION TO MR. D'OMBRAIN.

In the evening the National Rose Society held its annual dinner in the Hotel Windsor, the Dean of Rochester, the Very Rev. S. Reynolds Holc,

presiding. He was supported by Sir John D. T. Llewelyn, Bart, the Revs. E. Handley, W. Wilks, F. H. Gall, T. R. Burnside, and F. Page Roberts, Capt. Christy, Messrs. Paul, Haywood, Crowley, J. D. Pawle, A. F. Barron, W. J. Jeffries, A. Marsland, Marshall, Fison, Spenlings, and a large attendance of members. The date of the dinner had been altered from December, when it has hitherto been held, to this date, as being a more suitable time, and the change was justified not only by the attendance but by the appearance of the tables, for it was a veritable feast of Roses and Strawberries, which had been kindly supplied by Messrs. Turner, Paul, Rivers, and Prince. Besides the vases filled with Roses, each guest was supplied with a buttonhole Rose, so that honour was done to the Queen of Flowers.

The Chairman having in happy terms proposed the usual loyal toasts, said I have now the honour of proposing the toast of the evening, "Continued Success and Prosperity to the National Rose Society." I have had many happy hours in connection with the Society. I number amongst its members some of my dearest friends, and I have for many years, as you have, done my best to encourage the growth and exhibition of the Rose. You will agree with me that the prosperity of the Society is largely due to the energy and steady perseverance of its founder, who has gone on in his earnest way without being frightened by difficulties, and to him is owing in a great measure the present condition of the Society. Then turning to Mr. D'Ombraïn he said, You and I, my dear brother, have had much happy intercourse together for a long period of years, and I think I have not had nor shall have a happier one than this evening. Some of your rosarian friends had heard that you had met with a loss in having your watch stolen. Well, we thought it well that you should have a little time to meditate on your—well, shall I say want of caution; but as you have been sufficiently punished for it we desire to repair your loss, and I have therefore the pleasure of presenting you, on behalf of the rosarians of England, with this gold watch and chain, and hope that you may long live to use them.

The Rev. H. H. D'Ombraïn, in replying, said:—My dear friend, Dean Hole, and you, my good brother rosarians, you will readily believe that it is difficult for me to express rightly my feelings at this unexpected and undeserved mark of your kindness. I thank you all from the depth of my heart; it is an evidence, at any rate, that you do not share the sentiments of a dear old inmate of the Union House of which I am chaplain, who, when I told him of my loss, said, "Then I am afraid, sir, you were where you oughtn't to have been!" I desire to say, too, that I very much question the truth of what is sometimes said, That as we grow older we make acquaintances, not friends; for some of the warmest, kindest friends, I have ever had have been those I have made in the later years of my life. You have spoken of my work in the Society, but I should have done very indifferently but for the careful painstaking work of my co-secretary, Mr. Mawley. We have worked together for many years, no cloud has ever come between us, and I cannot say how much I am indebted to him. I again thank you most heartily for your kind gift.

The Chairman then proposed "The Health of Mr. Mawley," and the Rev. E. Handley proposed "The Health of the Chairman," who responded in his usual happy and genial style. Other toasts were proposed, and the party broke up, feeling that a most pleasant and successful meeting had been held.

SEDUMS AS EDGING PLANTS.

THE increasing demand for hardy plants capable of taking the places of tender ones in the flower beds has been the means of bringing into notice more than one of the favourites of bygone years as well as fresh subjects not hitherto employed in the flower garden. The plants up to this time most sought after have been those of a dwarf compact habit of growth, and producing a long continuance of flowers, or remarkable for their foliage. The Saxifrages, Violas, Gentians, and other genera have furnished recruits to the army of bedding plants. Not a few likewise have contributed materially in producing the equally important spring display. There are, however, some low-growing plants of whose existence many may not be fully aware, and as their easy culture places it within the means of everyone to grow them, they cannot be too well known. Those which I shall mention are all dwarf, quite hardy, and interesting to the lover of plants as well as to the botanist; and I am not sure but that those who delight in high flaring colours will find a relief in contemplating the sober yet far from dull hue of the plants about to be described, and which are not by any means new.

Sedum californicum.—This fleshy-leaved Houseleek differs from the kind so often met with on the tops of low buildings and other places where it is grown for its supposed medicinal properties, as the Californian Sedum is of more sturdy habit, and the leaves are all deeply tipped with purplish brown. The plant seems to thrive well in most situations, but likes a dry and sunny one, increases freely, and bears transplanting at any season. It forms an admirable edging to a small bed, and for places where a permanent edging is required it is extremely suitable. Occasionally it flowers, but not frequently, and when it does the sturdy stem bearing a head or corymb of flowers is not without beauty. It is less disposed to flower than either of the following two species. In habit of growth it much resembles the common Houseleek, the thickly clustered heads pushing each other out of place, and by degrees rising into a sort of mound. As already stated, it is not particular as to soil, but likes the sun.

Sedum glaucum.—Differing widely from the preceding, this low-

growing spreading plant quickly occupies its allotted space, and unlike many others may easily be kept to that line. It is of a pale whitish green colour, and looks well all the year round. About the middle or end of May it flowers abundantly, the bloom being of a greyish tint, not by any means unsightly, but rather the reverse when viewed from a distance. The plant prefers a dry situation and grows very fast, so that when once it has established itself it quickly covers the given space, and it does not seem to die off when it becomes old. Although I have had it in use for several years I have never known the centre or old portion of the plant die off or grow into an unsightly lump; on the contrary, it would preserve its original height of about 2 inches, and the flower does not rise more than 2 inches higher. The plant appears to accommodate itself even to the most prominent point of rockwork where there is only a very small quantity of soil. I have used it occasionally in winter gardening, and the grey hue of the plant was seen to advantage when the soil was dark-coloured with moisture. For a permanent edging it is all that can be desired in habit.

Sempervivum globiferum.—In habit this is more like *Sedum californicum*, but is less robust, and the whole plant is of a deep emerald green, the opening foliage looking like a partially opened Rose bud. In most respects it resembles *Sedum californicum*, excepting that it flowers more freely, and the individual flower stems are remarkably sturdy for so small a plant. I believe it is less plentiful than either of the first-mentioned two, but I have had it for several years, and the hardest winter does not take any effect upon it. Like the other members of its family it delights in sunshine and a dry situation, yet with me it is grown in many instances as a permanent edging around small circular beds containing a young specimen *Pinus* or other tree, and for such a purpose it, as well as the other two *Sedums*, is admirably adapted. It may be admired every day in the year, which is not the case with many ornamental objects.—L. P.

YORK SHOW.

JUNE 18TH, 19TH, AND 20TH.

YORK horticultural shows have become famous by their magnitude and excellence, as well as by the extraordinary interest they excite in the ancient city and adjacent towns. The last Exhibition, held on the above dates, fully maintained the high character of its predecessors, and was, both by its extent and diversified nature, admirably representative of English horticulture in its varied branches. It was, in truth, a great national Show of garden produce, the equal of which has not been seen elsewhere during the present season. It is not suggested that it equalled the Royal Horticultural Society's Show as held in the Temple Gardens for Orchids, or the Manchester Show of these and some other specimen plants, or the Royal Botanic Society's exhibitions for picturesque arrangement; but it excelled all these in the variety of the exhibits and the superiority of some of them, notably *Pelargoniums*, cut flowers, including Roses, and fruit. Some idea of the magnitude of the Show may be formed from the provision that was made for exhibits, and the tent room was really insufficient for their most effective display. A lofty circular marquee 100 feet in diameter was mainly occupied with specimen stove and greenhouse plants and Ferns; a tent 170 by 60 feet was provided for, and the central stage quite filled with *Pelargoniums*; another of the same length and 50 feet wide was furnished with groups of plants arranged for effect; a fourth, 140 by 50 feet, was devoted to Roses, Pansies, and various cut flowers; a fifth, of the same size, for miscellaneous plants; and a sixth, also of the same dimensions, but not large enough, was crowded with Orchids, fruit, flowers, and very good vegetables.

In respect to the quality of the exhibits it will be admitted that specimen stove and greenhouse plants were good, when it is stated that Mr. Letts put forth his strength and left Mr. Cypher farther behind than he is wont to be in the race for supremacy, though he might have brought better examples; also it will be conceded that Orchids were the reverse of weak when Cheltenham and Trentham about balanced each other. *Pelargoniums* were beyond comparison with those at other shows, and nothing approaching them has been seen, or will be seen, till the next York Show comes round again. Roses were a surprise to most persons, five collections of seventy-two's being staged. Tea Roses were magnificent, and it is questionable if one of Mr. Prince's stands did not contain the premier bloom of the year in *Comtesse de Nadailac*. It was a bloom to be remembered, and will not be soon forgotten by those who saw it for its size, substance, contour, and colour. The show of fruit was unquestionably by far the best that had been seen this year. Some of the groups of plants were strikingly beautiful, and hardy herbaceous plants were of commanding excellence. The officials of the Show were almost overwhelmed with produce, and yet, to their great credit be it recorded, all was in readiness for the Judges at the appointed time.

The York Horticultural Society is managed wholly by the leading men of the city, who work zealously, voluntarily, and effectively for the public good. There are neither nurserymen nor gardeners on the Committees, of which there are three—Floral, Finance, and Entertainment, and the members of these constitute the Council of the Society. It is under the patronage of the Prince of Wales; the Sheriff of the city (Thomas Clayton, Esq.) is the President; and Alderman Sir Joseph Terry (thrice Lord Mayor of York) is the Chairman, and surely no Society can have a better, and no one could be more highly esteemed than he is by his fellow citizens. Of the busy workers of the Show it was impossible to overlook the activity of Mr. Councillor Milward. Mr. T. G.

Hodgson and Mr. C. W. Simmons (the Secretary), and other gentlemen were equally zealous in the entertainment branch of this great "floral and musical" Exhibition, which is usually attended by about 45,000 visitors. The numbers, it may be expected, depend on the weather; but though rain fell heavily at the opening on the first day and continued till night the attendance was remarkable, for in addition to the subscribing ticket-holders upwards of £100 was taken by payment at the gates; and on the second day it is not unusual to take nearly £1000, excursion trains bringing the people in thousands. The "Grand Yorkshire Gala" is the event of the year in the great county, and the Show of last week was the thirty-second of the series. It is popular with all, well conducted in every way, and financially successful. The schedule contained 110 classes, in most of which there was brisk competition by 120 exhibitors, nearly £600 being offered in prizes, and all claims paid at the close of the Show.

ARRANGEMENT FOR EFFECT GROUPS.

Two classes were provided for these, and £47 provided in prizes. The stipulations were that the plants should be arranged and banked for effect. But only two exhibitors "banked," or distinctly elevated, their chief plants, and these worthily secured the three most valuable prizes. The large groups (open) had to be within 250 square feet of space; the smaller (amateurs, which in this case means nurserymen excluded), 150 square feet. Mr. John McIntyre, gardener to Mrs. Gurney Pease, Darlington, won the first prizes in both classes, £12 in the large, £6 in the small class. Mr. P. Blair was second in the large class, the prize being £9, and did not compete in the other. Only the three groups indicated merit special attention by their distinctness, as the others were similar in character to the arrangements usually seen at shows—namely a sort of carpet of Ferns and other small plants, and taller kinds rising above them individually. In the "banking" elevations are formed of a number of plants, each group so formed being separated from the others by a carpet of moss or dwarf Ferns; or to put it in another form, several small groups are made to form a large one. Tastefully done these arrangements are picturesque, but it is easy to err in the use of too much brown moss gathered from the ground under trees or elsewhere, and thus suggest extreme—not to say chilling—artificiality. Mr. McIntyre used a good deal of this moss in his large group, very little in the small one. Most persons at the first glance thought the former the more striking, but eventually regarded the latter as the more pleasing and satisfying.

It is not easy to make the arrangements intelligible in a few words. Briefly, in the centre of the 250 space Mr. McIntyre raised a very beautiful mound of plants and flowers, small Crotons, Ferns and *Oreobids* predominating. This mound was about 6 feet wide at the base, and 4 or 5 feet high, a fine specimen of a graceful Palm, *Phoenix rupicola*, rising from the centre, the arching leaves being quite above the floral bank. The plants were in the best of condition and charmingly arranged. Distant from the central mound were six smaller elevations, slender Palms rising from two of them, *Dracenas* from two others, and *Liliums* from the third pair, the base in each case being artistically formed of small bright and elegant plants. Along the back of the group was an arrangement of cork partly covered with moss and plants resembling a rockery. Along the front next the spectator was a low irregular fringe of low plants, from the centre of which rose to the height of 2 feet a bright and beautiful specimen of *Croton Hawkeri*, and near the corners were less tall, but massive and bright young plants of *C. Mortii*. Now to the moss. It simply covered the ground between the elevations, like a miniature valley curving around them. This was from 1 foot to 2 feet wide, but presumably to take off the formality, and, shall we say, "deadness," a small Maidenhair Fern was stood here and there, but still in places the moss was too obtrusive. The front of the whole arrangement consisted of a slightly raised verge of flakes of moss, with a few such plants as *Caladium argyrites* inserted in it. Such was the large group. Next to it was the smaller of the same exhibitor. It was in the same style as the other except the mossed ground between the mounds and tall plants. This was simply occupied with a low graceful surface of *Adiantum cuneatum*—dwarf healthy plants and perfect for the purpose. There were no flakes of brown green moss, except the front verge, and it had a dull, formal appearance in comparison with the fresh young Ferns beyond. Taking the two groups together, and regarding them as one—the work of one man over a surface of 400 square feet—the equal has not, perhaps, been seen at an exhibition, and Mr. McIntyre well deserved the prizes he won for his admirably grown plants and their picturesque association.

Mr. Blair's group in the large class was about equally admired by visitors for its extreme lightness and the superlative beauty of its central raised mound of Orchids under the spreading leaves of the clear stemmed Palm. The ground was a plateau of moss, from which tall slender beautiful plants rose like miniature trees, with tasteful touches of flowers, and here and there a jutting moss-covered stone. The back was a sort of hedge of *Bambusas* and Ferns with flowers rising from the bank—a trifle too heavy perhaps, and the front of the arrangement a little too sparsely furnished—too much moss. The exhibitor was, however, handicapped, for just where his space was the ground sloped down from the spectators, and had the reverse been the case the whole arrangement would have appeared fuller and more imposing. It was what the ladies called "lovely," and some of them appeared as if tempted to trip over the mossy carpet to examine more closely the arching spikes of Orchids so pleasingly associated under the Palm tree in the centre of the group. These "effect arrangements" of plants were a feature of the Show.

ORCHIDS.

Very good prizes were offered for these, for which superior examples of culture were exhibited by the Duke of Sutherland, Trentham (gardener, Mr. P. Blair), and a few other exhibitors, the whole producing a somewhat extensive and a decidedly rich and meritorious display. For ten plants, distinct, the first prize of £10 was won by Mr. Cypher with healthy well flowered examples of *Cattleya Sanderiana*, *Mossia*, and *Mendeli*; *Dendrobium infundibulum*, *thyr-siflorum*, and *suavissimum*; *Odontoglossum vexillarium* and *citrosimum*; *Lælia purpurata*, and *Cypripedium barbatum*, the plants ranging from 2 to 3 feet in diameter, and in superb condition. Mr. Blair followed with excellent specimens. In the class for six Orchids he turned the tables on his rival, winning first honours with *Cattleya Sanderiana*, very fine; *C. Mossia*; *Odontoglossum vexillarium* and *Alexandra*, and a very good *Masdevallia*, Mr. Cypher staging excellently also for the second prize. Mr. Blair followed his success with four plants—*Dendrobium transparens*, very superior; and *Cattleya Mossia*, *C. Mendeli*, and *Odontoglossum citrosimum*. Splendid examples of *Dendrobium thyr-siflorum*, *Cattleya Mendeli*, and *Odontoglossum citrosimum* secured Mr. Cypher the first position with three, but Mr. Blair followed him very closely, third honours going to Arthur Wilson, Esq., Tranby Croft, Hull (Mr. Leadbetter, gardener), for smaller yet fresh and healthy plants. In the single specimen Mr. F. Nicholas, gardener to the Earl of Zetland, Upleatham, overweighed his competitors with a remarkable specimen of *Calanthe veratrifolia* in robust health, and bearing about thirty spikes of flowers. Mr. Blair was second with a large well grown and freely flowered example of *Masdevallia Harryana*, and Mr. J. Walker, gardener to C. G. Broadwood, Esq., York, a close third, with a well flowered specimen of *Odontoglossum vexillarium*. Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, contributed meritoriously and effectively to the Exhibition in the form of a splendid group of Orchids, comprising 200 or more plants in choice forms and admirable condition. A certificate of excellence was awarded to the exhibitors, and a special prize recommended.

STOVE AND GREENHOUSE PLANTS.

Two collections of sixteen stove and greenhouse plants were staged, Mr. Letts, gardener to the Earl of Zetland, being first with admirably grown plants such as he invariably exhibits. The Aske plants have a well-earned celebrity for high class culture, and Mr. Letts was the leading exhibitor throughout for stove and greenhouse plants. Mr. Cypher of Cheltenham was second, but his plants were weak compared with what he usually sets up. Mr. Letts was also first for six stove and greenhouse plants, and for six ornamental plants. His *Crotons Johannis* and *montfordiensis* were both superbly coloured, and his *Cycas circinalis* a grand plant. T. B. Hodgkins, Esq., was a good first for three stove and greenhouse plants, and Mr. Letts first for four grand *Crotons*. Mr. McIntyre, gardener to Mrs. Gurney Pease, Darlington, was first for *Dracenas*, excellent specimens; and Mr. Hodgkins was a close second, and a good first for three Cape Heaths, *Erica gemmifera*, *E. ampullacea major*, and a superb *E. ventricosa magnifica*; second, Mr. Letts; third, Mr. Cypher.

Several groups of alpine and herbaceous plants were staged, and Ferns in the various classes were numerous and good, Mr. Letts taking first prizes for both six and three specimens. *Gloxinias* were numerous, but small plants, not so fine as we have seen at York; and *Tuberous Begonias* and *Calceolarias* were not so good as usual.

PELARGONIUMS.

The *Pelargoniums* at York are famous, and although there was a little falling off this year in quantity, the first and second prize plants were all that could be desired, grand specimens of high-class cultivation such as cannot well be surpassed, and are now never seen in the London district. Mr. Eastwood, gardener to Mrs. Tetley, Leeds, a very successful exhibitor for many years at York, was again first for twelve plants, magnificent specimens, amongst them a wonderfully fine *Kingston Beauty* nearly 5 feet through, and a very fine plant of *Lovely Bride*, raised by Mr. Harrison of Leeds, a well-known amateur and regular attendant at the York Gala. Mr. McIntosh, gardener to J. T. Hingston, Esq., York, was second for superbly cultivated plants, but not so much in bloom as Mr. Eastwood's, still an excellent second. In the class for six *Pelargoniums* the positions were reversed, Mr. McIntosh being first, Mr. Eastwood second, and the prizes for three *Pelargoniums* were in the same order. For years prizes were offered for *Fancy Pelargoniums*, and years ago Mr. Turner, Mr. May, and others showed fine plants, but the *Fancies* seem to be out of fashion, and the Committee have withdrawn the classes for them as there was such indifferent competition.

The *Zonals* are always a grand display at York, many of the plants 4 to 5 feet in diameter and wonderfully flowered. Mr. Eastwood took first prizes for twelve, six and three plants, and very high praise is due to him for turning out such finished specimens. In some of the exhibits of *Zonals* a much too formal system of tying exists in order to get a concentrated head of flower. Experienced judges are opposed to such practices, and a more natural habit of the plant is preferred. There were large numbers of plants staged, including some very fine specimens of double *Pelargoniums*, Mr. G. Cottam, jun., taking first for eight and Mr. Eastwood second; and for four specimens Mr. Eastwood was first, Mr. McIntosh second, Miss Steward third, and Miss Wharton fourth. Some specimen double Ivy-leaved *Geraniums* were a pleasing feature

in the Pclargonium tent, large, well grown and well flowered specimens from 2½ to 3 feet high; Mr. Henry Pybus, nurseryman, Leeds, took the first prize. Fuchsias in the various classes were very good indeed, well flowered specimens and numerous. Dinner table plants both numerous and excellent, a row forming a pleasing background to the fruit.

CUT FLOWERS.

The cut flower department of the Exhibition, especially with the Roses, is always a strong feature. For twelve varieties of stove and greenhouse flowers, Mr. Blair of Trentham was first with a beautiful stand, all Orchids except a truss of *Eucharis*. Second, J. B. Hodgkin, Esq.; third, Mr. George Cottam, jun.; and for six varieties, first, Mr. Blair; second, Mrs. Lloyd; third, Mr. Hodgkin; fourth, Mr. Riddell, The Gardens, Castle Howard. A class for Orchids alone would be filled in these days, and another with Orchids excluded would give a better chance for the majority of cultivators. Some admirably arranged epergnes, baskets of flowers, and baskets of Roses were staged, and Messrs. Perkins & Son, Coventry, were to the front with superb bouquets.

Hardy herbaceous plants were numerous, and of good quality throughout, but generally there is a formal stiff appearance about them when arranged in close bunches in boxes. Messrs. Harkness and Sons, Bedale, took first prizes for twenty-four varieties (prizes offered by Mr. Ware, Tottenham), and twelve varieties (the Society's prizes), and these were all shown in good-sized bunches, not formally arranged, and shown in Hyacinth glasses. There was a fine display of Pyrethrums, and they make a telling display when well staged. For twenty-four blooms of doubles and twenty-four singles, Messrs. James Cocker and Son, Aberdeen, were first in each class—Shylock, large and brilliant; Purple Prince, rosy crimson; and Banquo, deep rose, in singles; and in doubles, Progress, rich in colour; Godive, and Iveryana, were conspicuous.

Six classes are devoted to Pansy blooms, of which there was a large display and a fair competition, but blooms of first rate quality were absent. The season has been a very trying one to Pansy growers, and even in the large collections sent from Scotland by Mr. John Forbes, Hawick, and Mr. Irvine from the Rothsay district first class blooms were not general by any means. Mr. Forbes sent 200 blooms, and a certificate was awarded for a seedling James Drummond, which has a large and very rich dense solid blotch in each petal, and of good form and substance, and amongst the blooms John Pope was very fine, and Maggie Pattison, Walter Prior, Eva Jones, Robert Jamieson, Mrs. D. Holloway, Miss Powell, and Rev. J. Campbell will be welcomed by growers. Mr. Andrews, Irvine, sent also, not for competition, a large stand of blooms, and certificates were awarded to two seedlings, Agnes Mabel and David Rennie, both very promising acquisitions.

ROSES.

Of these, as above indicated, there was a surprisingly great display considering the date of the Show. It was too early, however, for local or northern growers, and the southerners took all before them. In the class for seventy-two blooms in not less than thirty-six varieties Mr. B. R. Cant secured the premier position with an excellent collection, not a few of the blooms being large and fine, notably Etienne Levet, Lady Mary Fitzwilliam, François Michelon, Niphotos, Marguerite de St. Amand, Souvenir d'un Ami, Magna Charta, Henrich Schulthies, Merveille de Lyon, Ulrich Brunner, Comtesse de Nadaillac, Cleopatra, and Mrs. John Laing, this very fragrant Rose being well represented. Mr. Frank Cant was a very good second, the gem of his stand being a beautiful bloom of Rubens; Crown Princess Victoria, nearly white, and Mrs. John Laing were also very fine. Messrs. Paul & Sons, Cheshunt, were third with somewhat smaller though fuller and firmer blooms, even throughout, third honours falling to Messrs. Cooling & Sons, Bath. The two first-named exhibitors occupied the same relative position in the forty-eight bloom class (six exhibitors), also with thirty-six blooms, of which there were the same number of exhibitors as in the preceding class. Messrs. Paul & Sons, Prince & Son, and Cooling & Sons were the other prize winners.

The most notable stands, however, were those in the class for twenty-four distinct Roses. Mr. Prince outdistanced his rivals with a meritorious stand, comprising Anna Ollivier, Niphotos, Princess of Wales, Souvenir de S. A. Prince, Duke of Wellington, Maréchal Niel, Général Jacqueminot, Comtesse de Nadaillac, the queen of the Show, and truly magnificent; Jean Ducher, Duchess of Bedford, The Bride, Catherine Mermet, Duke of Connaught, Viscountess Folkestone, Princess Beatrice, Souvenir d'un Ami, La France, Jean Pernet, Souvenir de G. Drevet, Mrs. James Wilson (white edged and suffused with rose), Rubens (very fine), Madame Lambard, and Marie Van Houtte. Mr. B. R. Cant and Mr. Frank Cant followed in the order named. Mr. Prince was the chief prizewinner in the class for twelve white and yellow Roses in not less than six varieties with beautiful blooms of Maréchal Niel, Comtesse de Nadaillac, Princess of Wales, Madame Furtado, The Bride, Souvenir de S. A. Prince, and Iton. E. Gifford; Mr. B. Cant second; and Messrs. Prior & Sons, Colchester, third.

Very good stands were exhibited in the classes for twelve Roses of any one variety. In the H.P. class Mr. B. Cant was far in advance with large, fresh, well-coloured examples of Ulrich Brunner. Messrs. Prior were second with a good stand of Lady Mary Fitzwilliam; and Dr. Rudd, Bath, third, with rather small but very compact and symmetrical examples of A. K. Williams. In the corresponding class for Teas Mr. Prince was distinctly first with splendid blooms of Comtesse de Nadaillac, as fine a stand of this beautiful Rose as has perhaps been

seen at any show. Mr. B. Cant was second with Souvenir d'un Ami, very good; and Messrs. Prior third with Anna Ollivier. In the amateurs' classes the blooms were generally small, some of the best being staged by Mr. Rudd, who secured first prizes for eighteen, also for six distinct varieties.

Roses in pots were not so numerous as is usual here, and we are getting tired of seeing the same old leggy plants year after year with a forest of sticks in them. Roses in pots have been so liberally encouraged for many years by the York Executive that we wonder better cultivated younger specimens in greater variety are not forthcoming. Those exhibited are only suitable for grouping.

FRUIT.

Fruit has for many years formed an important and interesting feature of this Show, and the different classes have generally brought keen competition, until it is understood among growers that it is of no use taking indifferent fruits to York, the result being that a uniformity of superior culture prevails throughout; and although each exhibitor cannot claim the first prize, there is certainly not that great falling off from the first prize specimens to the third or fourth which is often seen at other shows. However good past exhibits of fruit have been here, few have come up to the present one both for quantity and quality, the collections and single dishes being all that could be desired, especially when the early date of the Show is taken into consideration. Where all is good it is difficult to particularise, but certainly such fruit as was staged by Mr. McIndoe deserves more than passing comment. It was sufficiently good as to take a distinct lead in all three collections, while the three bunches of Black Hamburgs and the three bunches of Buckland exhibited by Mr. Allsop were marvels of good culture. In fact, it would be difficult to conceive better grown or finished bunches of the latter variety. Evidently Mr. Allsop thoroughly understands its culture.

The class for a collection of ten dishes brought five exhibitors, and hardly a faulty dish in the fifty. Mr. McIndoe, The Gardens, Huttoa Hall, Guisborough, was first with the following:—Black Hamburg, well finished; Muscat of Alexandria, good bunches, with large berries and fine colour; Queen and Smooth Cayenne Pines, Best of All and Scarlet Premier Melons, Grosse Mignonne and Magdala Peaches (very fine), Stanwick Nectarines, and Brown Turkey Figs. A grand collection. Mr. R. Dawes was second, and had small but well-finished Madresfield Court Grapes and Buckland Sweetwater (hardly finished); large Bellegarde and A Bee Peaches, and Lord Napier Nectarines were his best dishes. Mr. J. Edmonds was third; good Black Hamburgs and Peaches were his strongest dishes.

For six dishes Mr. McIndoe was first with a collection very similar to that in the preceding class, good Muscats being again staged. Mr. P. Blair was a close second with Black Hamburgs and Muscats, a good Pine and Melon, Royal George Peaches, and Lord Napier Nectarines. Mr. R. Parker was third. With four dishes (Pines excluded) Mr. McIndoe was again first, showing more Muscats and Black Hamburgs, Best of All Melon, &c. Mr. J. Clayton was placed second, showing good Black Hamburgs, Elruge Nectarines, and A Bee Peaches. Mr. Leadbeater was third, fine Peaches and Nectarines being his best dishes. For a single Pine some fine fruits were staged. Mr. McIndoe was awarded first honours, Mr. R. Parker second, and Mr. P. Blair third; all Queens.

With three bunches of Black Hamburgs Mr. Allsop was an easy first with fine compact bunches, good berries, and well finished; Mr. J. Johnson, Boston Spa, second; Mr. W. Wallis, Kirby Hall, third; and Mr. H. E. Bennett fourth. White Grapes (three bunches).—Mr. J. Allsop was easily first with the fine Buckland Sweetwater already mentioned; second Mr. Wallis, with the same variety, but lacking the finish; third Mr. McIndoe, with Muscat of Alexandria, rather green.

Peaches (single dish).—First, Mr. Divers with grand Early Albert; second, Mr. G. Taylor; third, Mr. McIndoe; fourth, Mr. T. Hare. Nectarines (single dish).—First, Mr. P. Blair with grand Lord Napier; second, Mr. R. Dawes with the same variety; third, Mr. T. Hare; fourth, Mr. W. Wallis.

Melon (scarlet-fleshed).—First, Mr. McIndoe with Scarlet Premier; second, Mr. R. Dawes; third, Mr. F. Nicholas. Melon (white-flesh).—First, Mr. J. Edmonds; second, Mr. J. Leadbeater; third, Mr. P. Blair. Melon (green-flesh).—First, Mr. T. Hare, Dell's Hybrid; second, Mr. P. Blair; third, Mr. McIntyre. Figs (single dish).—First, Mr. P. Blair; second, Mr. R. Parker; third, Mr. J. McIndoe. Cherries (single dish).—First, Mr. T. Hare; second, Mr. P. Blair; third, Mr. J. McIndoe. Strawberries.—First, Mr. W. H. Divers, a grand dish of Auguste Nicaise; second, Mr. McIndoe with Sir Harry; third, Mr. Blair with the same variety; fourth, R. Anderson (York).

MISCELLANEOUS.

Vegetables are not invited by the Society, but Messrs. Sutton and Sons and Messrs. Webb & Sons offered special prizes, and the exhibits in both classes were very meritorious.

Honorary exhibits were numerous, and generally of great interest. Messrs. Backhouse & Son, York, staged a large group of the rarer kinds of alpine and herbaceous plants, amongst them *Saxifraga hibernata*, *Lilium Washingtonianum*, *Campaula persicifolia alba grandiflora*, the lovely *Ramondia pyrenaica*, *Anthurium liliastrum giganteum*, *Achillea mongolica*, *Cypripedium spectabile*, several plants of *Saxifraga longifolia*, *Sarracenia purpurea*, *Lithospermum graminifolium*, and many others. A pretty rock or alpine garden arrangement, in which some of the foregoing and other plants, including tufts of *Thymus serpyllus*

coccineus were growing, was effective. The collection also included *Mertensia siberica*, a very pretty small growing Anchusa-like plant, and the lovely *Polypodium trichomanoides*. Messrs. Cannell & Sons sent blooms of seedling double and single Pyrethrums; new Regal Pelargoniums, including President Harrison, very bright in colour; Bushill Beauty, Mrs. Harrison, Hamlet et Ophelié a distinct and pretty soft lilac tinted variety; and the handsome single Zonal, Souvenir de Mirande. Messrs. Birkenhead, Sale, staged 500 plants of the rarer Ferns, an exhibit of considerable interest to Fern growers; Messrs. Ryder & Son, Manchester, a large collection of cut double and single Pelargoniums; Messrs. Dicksons, Limited, Chester, had a good display of cut herbaceous Pæonies, containing several varieties of great beauty; and Messrs. Paul and Son, the Old Nurseries, Cheshunt, a large display of cut herbaceous plants, &c., including some very fine varieties of herbaceous Pæonies, *Rosa rugosa* and *rugosa alba*, *Geum miniatum*, bright orange red and pretty; *Codonopsis clematidea*, a campanulaceous plant, with soft lilac-tinted flowers and darker centre; *Arnebia echioides*, pale yellow and very pretty; *Tropæolum polyphyllum*, and several other valuable additions to many collections of herbaceous plants. Certificates of merit were awarded to the exhibitors.

The afternoon of the first day was unfortunately very wet, and the number of paying visitors was only 2753, as against 4643 in the previous year. On the second day 30,701 were admitted as against 24,308 last year, and on the third day 16,292 as against 14,850 last year. The receipts at the gates were for this year £1579, an unprecedented taking here, and the revenue for the year from all sources will be quite £2000.

ROYAL HORTICULTURAL SOCIETY.

JUNE 24TH.

THE Drill Hall has never been so crowded with exhibits as it was on Tuesday last, as in addition to the numerous plants and flowers submitted to the Floral and Orchid Committees, the National Rose Society's classes constituted an exhibition in themselves. Five long tables were filled, and the floral display was excellent throughout. Fruit was not largely shown, but there were some good Nectarines and Strawberries. Roses formed the special feature of the day, and surprisingly fresh and beautiful they were, particularly the Teas, which were admirably represented from numerous exhibitors.

FRUIT COMMITTEE.—Present: Sir C. Strickland, Bart., in the chair, and Messrs. J. Lee, T. Francis Rivers, R. D. Blackmore, Harrison Weir, Philip Crowley, J. Cheal, T. F. Saltmarsh, J. Willard, W. Bates, F. Q. Lane, G. Wythes, J. Hudson, R. Balderson, J. Smith, and G. W. Cummins.

Messrs. de Rothschild, Gunnersbury Park (gardener, Mr. Hudson), showed a box of Nectarines comprising twenty-eight extremely handsome fruits of Lord Napier (cultural commendation). Fine fruits of Stanwick Elruge Nectarine from Mr. T. H. Crisp, Canford Gardens, Wimborne, also secured a similar award to the above. Messrs. Paul and Son, Cheshunt, exhibited nine dishes of Strawberries, including Noble, King of the Earlies, Pauline, La Grosse Sucrée, and Vicomtesse Hericart de Thury and Crescent; an award of merit being granted for the latter, which is a small fruited, prolific, and early variety. From Mr. G. Wythes, Syon Gardens, came a Melon said to be from a cross with Blenheim Orange; it was finely netted. Mr. J. Douglas, The Gardens, Great Gearies, Ilford, Essex, sent a good fruit of the Countess Melon, white flesh, well netted, and of fair flavour (vote of thanks). Mr. W. Palmer, Thames Ditton House Gardens, showed four handsomely netted fruits of the scarlet flesh Melon Sutton's Triumph; he also sent fine samples of Sutton's Mammoth Longpod Beans and Sutton's Duke of Albany Peas (cultural commendation). Mr. H. Field, Brunswick Gardens, Leamington, showed a bright red even Tomato under the name of Brunswick; and Mr. C. Osman, Sutton, Surrey, exhibited enormous specimens of Stott's Mammoth Rhubarb.

FLORAL COMMITTEE.—Present: W. Marshall, Esq., in the chair, and Messrs. B. Wynne, H. Herbst, J. Walker, W. C. Leach, H. Turner, E. B. Lowe, H. Cannell, C. Noble, G. Paul, E. Mawley, C. T. Drury, W. Goldring, W. Holmes, and the Rev. H. H. D'Ombraim.

Sir C. W. Strickland, Bart., sent a flower head of a species of *Buphane* from the Upper Zambesi, the flowers small bright scarlet on broad peduncles; flowers of *Crinum crassipes* were also shown. O. T. Hodges, Esq., Lachine, Chislehurst, exhibited a collection of Pentstemon flowers, representing several species, with flowers of the yellow strongly scented *Lilium Szovitzianum*, and the white graceful *Calendula pluvialis*. Shirley Poppies from the Rev. W. Wilks formed a beautiful, bright, and varied group (vote of thanks).

Messrs. J. Veitch & Sons, Chelsea, contributed an excellent collection of flowers and plants (silver-gilt medal), occupying a large space on one of the central tables. Hybrid *Rhododendrons* were very fine, also *Gloxinias*. A capital deep-coloured variety of *Erica carnea*, the white *Andromeda speciosa cassinefolia*, *Styrax japonica*, *Kalmia latifolia major splendens*, a variety with large, richly coloured flowers, and the Rose *Acacia*, *Robinia hispida*, were notable. *Delphiniums*, *Aquilegias*, *Iris*, and *Campanulas* were all varied and good. New Roses from Messrs. W. Paul & Son, Waltham Cross, included several of much promise. Amongst them were Spenser, a pale pink Hybrid Perpetual; Duchess of Albany, a bright pink Hybrid Perpetual; White Lady, a Hybrid Tea, with fine flowers; Zenobia, a large deep crimson Moss Rose; and Marchioness of Lorne, a rosy crimson Hybrid Perpetual

(award of merit). A choice collection of Pæonies and hardy flowers, with several new Roses, came from Messrs. Paul & Son, and five were selected for awards of merit. Three boxes of Rose Souvenir de S. A. Prince were staged by Mr. G. Prince, Oxford, wonderfully fine, fresh, even blooms. Messrs. D. Prior & Son had a box of Rose William Allen Richardson, of an unusually deep orange colour. Messrs. G. Cooling & Sons, Bath, exhibited a meritorious collection of Tea Roses, *Polyantha* varieties, and Moss Roses. Messrs. Barr & Son, Covent Garden, had an extensive and beautiful display of hardy flowers (silver medal). Mr. E. F. Such, Maidenhead, also had a varied group of hardy flowers (vote of thanks). Messrs. H. Cannell & Sons, Swanley, exhibited a bunch of grand Pæonies in many varieties (bronze medal), and a double pink Begonia, Miss Eastwood (award of merit). Decorative and garden Roses from Messrs. G. Bunyard & Co., Maidenhead, formed a most interesting exhibit. Messrs. Cutbush & Son, Highgate, showed some *Ivies* and *Stephanotis*. Messrs. J. Laing & Sons, Forest Hill, showed a fragrant yellow single tuberous Begonia. Messrs. J. R. Pearson & Sons, Chilwell, contributed some new Zonal Pelargoniums of great merit. Messrs. Laxton Bros., Bedford, sent blooms of seedling white Pinks, named Snowflake and Stanley, both very good; and Mr. H. J. Jones, Lewisham, had a large yellow Carnation, Pride of Great Britain (award of merit).

ORCHID COMMITTEE.—Present: H. J. Veitch, Esq., in the chair, and Messrs. De B. Crawshay, S. Courtauld, T. B. Haywood, H. M. Pollett, H. Ballantine, J. Fleming, J. Douglas, C. Hill, F. Sander, Lewis Castle, James O'Brien, and Dr. M. T. Masters.

Messrs. F. Sander & Co., St. Albans, showed a basket of Orchids, *Phaius Humbloti* chiefly, with a new *Sarcopodium* bearing the name of *Godseffianum*. Messrs. J. Crispin, Nelson Street, Bristol, sent a collection of Orchid flowers, comprising *Cattleyas* and *Dendrobiums*, very bright. Malcom S. Cooke, Esq., Kingston Hill (gardener, Mr. D. Cullimore), sent a plant of a peculiar green *Catasetum*, spotted with black, regarded as *C. atratum*, and with it was a much darker *Catasetum*, possibly a variety of the other.

Messrs. J. Veitch & Sons, Chelsea exhibited several novelties, which were certificated; and a strong plant of *Thunia Veitchiana*, a hybrid between *T. Bensoniæ* and *T. Marshalli*. Sir Chas. Strickland, Bart., sent flowers of *Disa tripetaloides*, white dotted with pink in long racemes (award of merit). De B. Crawshay, Esq., Rosefield, Sevenoaks, had flowers of a handsome *Cattleya gigas*, named Mrs. De Crawshay.

CERTIFICATED PLANTS.

Cattleya Gaskelliana Cooke's variety (S. Cooke, Esq.).—A beautiful variety, the flowers large and of excellent shape, pale delicate mauve, the lip neatly fringed and pale orange in the centre.

Lælio-Cattleya Canhamæ (J. Veitch & Sons).—A hybrid between *C. Mossiæ* and *Lælia purpurata*, the reversed cross of *L. Canhami*. The flowers are large, the sepals and petals spreading and pale mauve, the lip broad heavily marbled with rich crimson, pale gold in the throat, very handsome and distinct (award of merit).

Lælio-Cattleya eximia (J. Veitch & Sons).—A hybrid between *Cattleya labiata Warneri* and *Lælia purpurata*, remarkable alike for the fine shape and rich colour of the flowers. The sepals and petals spread equally, of a warm but delicate rosy purple shade, the lip of an intensely rich crimson shade, reminding one of the tints seen in some of the *Petunias*, with a paler edge. It is a grand Orchid, one of the best hybrids in that section yet obtained.

Epiphronitis Veitchi (J. Veitch & Sons).—A most peculiar and interesting hybrid between *Epidendrum radicans* and *Sophronitis grandiflora*, the latter being the seed parent. The plant was about 6 inches high, similar in growth and leaves to the *Epidendrum*. The flowers are about the size of the *Epidendrum*, but a shade or two darker and richer in colour, the sepals and petals broader and rounder, the lip four-lobed but not cut at the edge as in the *Epidendrum*, yellow in the centre with a few dark spots.

Masdevallia Courtauldiana (S. Courtauld, Esq.).—An interesting hybrid between *M. rosea* and *M. Shuttleworthi*, the flowers resembling the former in size and colour except the dorsal sepals, which partially resemble *M. Shuttleworthi*.

Sarcopodium Godseffianum.—A peculiar and interesting species, with small conical pseudo-bulbs, the dorsal sepal nearly an inch broad, tapering, yellow, semi-transparent, reticulated with a darker reddish orange colour. The two lower sepals peculiarly twisted forward, and stained with deep crimson. The petals pale yellow, tapering, the lip ivory white, dotted pink.

Carnation Pride of Great Britain (H. J. Jones, Lewisham).—A seedling, raised by Mr. G. Fry, with large full well formed clear yellow flowers. Strong in habit.

Rhododendron Ajax (J. Veitch & Sons).—One of the best of the javanicum section. The flowers of great size, the lobes broad and rounded, of a rich distinct salmon red tint, very clear, and the variety is one of considerable merit.

Philadelphus microphyllus (J. Veitch & Sons).—A graceful shrub, with slender branches, small leaves, and small pure white flowers, which are very freely produced. It is quite distinct from all the other "Syringas" usually seen in gardens.

Rose Marchioness of Lorne (Wm. Paul & Son).—A Hybrid Perpetual, with extremely fragrant blooms of a distinct rosy crimson shade. The blooms were full and handsome (award of merit).

Campanula persicifolia alba grandiflora (Paul & Son).—Remarkable

for the great size of the flowers, which resemble a Canterbury Bell, and are pure white. It is of vigorous habit, and extremely floriferous.

Pæony Daubenton (Paul & Son).—A double variety, with very large, glohular bright rose flowers.

Pæony Berlioz (Paul & Son).—Deep crimson, flowers very large, full, and effective.

Rose John D. Pawle (Paul & Son).—A Hybrid Perpetual, deep purplish crimson; petals broad and of great substance. Extremely fragrant.

Rose Mrs. Paul (Paul & Son).—A seedling Bourbon Rose, pale pink or blush, delicate and pleasing; the flower substantial and good in form.

Begonia Miss Eastwood (H. Cannell & Sons).—One of the tuberous varieties, with very large double flowers of exceptionally good form, and a soft pale colour.

Pelargonium Midsummer (J. R. Pearson & Sons).—A single Zonal variety; the flowers large and of capital shape, salmon pink.

RICHMOND SHOW.

JUNE 25TH.

THE Richmond Horticultural Society is one of the most flourishing and successful of all the numerous societies around the metropolis. Commanding an extensive and fashionable district in Surrey, it has steadily rose during the sixteen years of its existence to an important position amongst the leading provincial institutions of a similar kind. It has performed valuable work in the encouragement of horticulture, and at very few shows are the exhibits distinguished by such even quality as there. The Society has long been favoured with the patronage of the Duke and Duchess of Teek, which has assisted greatly in the extension of its popularity. Two admirable Secretaries have guided its fortunes. In the earlier years Mr. A. Chancellor was the leading spirit, and now for some years Mr. J. H. Ford has performed the same duties with considerable satisfaction. Further, a practical and business-like Committee have adopted a broad-minded liberal policy in their dealings with exhibitors. Substantial schedules have been formed, and the classes thrown into divisions, so that while prominent encouragement is given in the open classes to exhibitors from other districts, the smaller local competitors are duly protected. The principal Show of the Society, which has now been held for some years in the Old Deer Park, Richmond, is thoroughly comprehensive, liberal prizes being offered for specimen plants, groups, cut flowers (especially Roses), floral decorations, fruit, and vegetables, about thirty special classes being also provided by local amateur supporters, nurserymen, and others.

The Exhibition of the present year, which was the sixteenth the Society has held, was opened on Wednesday (yesterday) as usual in the Old Deer Park, and again maintained the credit of Richmond in a most satisfactory manner both as regards the number and merit of the exhibits. Four spacious marquees were filled, one with cut flowers, bouquets, and floral decorations, two others with specimen plants and groups, and the fourth with fruit and vegetables, cottagers' exhibits also occupying some space, and miscellaneous garden appliances were arrayed in the ground. Much credit is due to the officials for the admirable system of management, especially to Mr. J. H. Ford and his assistant, Mr. E. Pragnell, while the popular Chairman and Vice-Chairman, T. Skewes-Cox, Esq., and G. Nicholson, Esq., with such energetic members of the Committee as Messrs. J. S. Lindsay, W. Bates, W. Brown, A. Bray, and H. Herbst, assist materially in some of the most arduous work of the Society. The Exhibition was one of the largest and best the Society has ever held, as there were over 500 entries, or nearly 100 in excess of the usual number. There is always a peculiar freshness and charm about the Richmond Show, and never have its special characteristics been more strongly marked than on this occasion.

CUT FLOWERS—ROSES.

These formed an important portion of the Exhibition, and Roses especially were as largely and well shown as last year, and following so quickly the Tea Rose display at Westminster, the season may be said to have commenced in a highly satisfactory manner. The blooms in all the leading classes were of admirable quality, extremely fresh, and the colours bright. We can only briefly refer to the chief exhibits and the general character of the display, as time did not admit of a fully detailed report.

With thirty-six Roses (triplets) Messrs. Paul & Son, Cheshunt, were first for fresh and beautiful blooms, followed by Mr. B. R. Cant, Colchester, and Messrs. D. Prior & Son, Colchester, amongst five exhibitors. Mr. B. R. Cant was first for twenty-four Roses (triplets), closely followed by Messrs. Paul & Son, and Messrs. Burch, Peterborough. Mr. R. E. West, Reigate, had the best stand of twelve Roses, capital blooms, and he was also first for twenty-four blooms in a special class. There were numerous other classes, but the quality of the flowers in the local and amateur classes was considerably below that of the open classes.

In one of the stands two blooms were shown under the names of Dr. Andry and A. K. Williams, and so nearly alike were they in all characters that the exhibitor ran a narrow chance of being disqualified, though he was undoubtedly first. It was considered, however, after a close examination that they were distinct, and this was subsequently substantiated. In the classes for thirty-six and twenty-four the com-

petition was very keen, and so nearly equal were three or four of the stands in each class that their relative positions could only be determined by careful "pointing." The temperature was high in the tents, and tried the Roses with other cut flowers greatly during the day, and it was surprising what a difference was effected in the course of an hour.

Vases and stands of flowers were as usual very tasteful. Mr. J. R. Chard, Stoke Newington, was first for tall stands; and Mr. W. Brown second for low dishes of Irises and Ferns, very tastefully arranged. Miss Wigan was third for a combination of yellow and purple Irises. Messrs. Chard and Perkins were the winners for bouquets. Baskets of Roses and Ferns were well represented. The Judges had much difficulty in this department, as the styles were so diverse, each one exceptionally meritorious in its way, and in several cases equal prizes would have been a fitting recognition of the two leading exhibits in the respective classes. This especially applies to the stands of flowers, and it is worthy the consideration of the Committee whether separate classes should not be formed, as it is evident that it would admit of considerable extension.

PLANTS.

Classes were provided for stove and greenhouse plants, Pelargoniums, Ferns, Caladiums, and Orchids, &c., and an extensive display was afforded by the numerous exhibits. The large specimens are evidently becoming rather scarce, except as regards foliage plants, Palms and Ferns, the groups with collections of special plants taking their place, a hint that additional provision might be made for them with advantage. Stove and greenhouse plants from F. Twining, Esq., Messrs. W. Bates, and Mould were the most notable, and secured the chief prizes, the plants being healthy neat specimens of moderate size. Coleuses from Messrs. Coombes, Barnes, and Wilks; Gloxinias from Messrs. Nunn, Meaton, and Wilks, were all of considerable merit. Excellent Ferns came from Mr. Want, fine-foliage plants from Colonel Pepper, and Fuchsias from Mr. Burton. Orchids were not largely represented, but H. Little, Esq., Twickenham, had a handsome non-competing group of Cattleyas. He also was first in the class for a collection, comprising large and well grown Cattleyas, Cypripediums, and Dendrobiums. F. Wigan, Esq., followed, and Mr. James was third.

GROUPS.

The importance of groups of plants arranged for effect is now recognised in most shows, and at Richmond they form an excellent feature, distinguished by the taste of their arrangement. This year Mr. W. Brown of St. Mary's Grove Nursery was placed first in the principal class with a well-arranged and highly tasteful group, which, it may be said, was the unaided work of Mr. Brown's son, who appears to have inherited his father's remarkable skill in the arrangement of plants and flowers. Messrs. Fromow and H. James were second and third respectively, both having praiseworthy groups. In the amateurs' class, Col. Pepper, Milford Hill, Salishury, was the leading exhibitor.

The non-competing exhibits were very numerous, and comprised good collections of Roses from Messrs. Veitch & Sons, Chelsea, who also had groups of hardy flowers; groups of miscellaneous plants from Messrs. J. Laing & Sons, Forest Hill, and Puttock & Sheppard of Kingston. Hardy flowers from Messrs. Collins Bros. & Gabriel, Lilies from Mr. Gordon of Twickenham, Roses from Messrs. Burch, Lee, and Jackman, and choice floral decorations from Mr. W. Brown were some of the principal features.

At the luncheon in the afternoon the Chairman, Mr. T. Skewes Cox, in proposing various toasts, with the healths of the Judges, Messrs. Laing, Barron, Gordon, Castle, Denning, and Douglas, remarked that it was satisfactory to learn the Society is making substantial progress, having added over fifty subscribers to its list in the past year, and the Show of the present year was the largest in number of entries ever held, a sufficient indication that the management was right, and that the work being done in the district was fully appreciated.

FRUIT.

An excellent display of fruit was provided, and a wonderful show of Grapes. With a collection of six fruits Mr. Osman, gardener to L. J. Baker, Esq., Ottershaw Park, Chertsey, was first with fine bunches of Black Hamburgh and Buckland Sweetwater, Peaches, Nectarines, Figs, and a Melon. Mr. W. Bates, Poulett Lodge Gardens, Twickenham, was a close second, his Nectarines and Noble Strawberries being extremely fine. The best three bunches of black Grapes came from Messrs. Wells, Hounslow, fine bunches of Madresfield Court. Mr. Osman and Mr. Clinging followed with Black Hamburghs well coloured. Messrs. Feist, Clinging, and Bates were the prizetakers for white Grapes, showing Muscat of Alexandria and Foster's Seedling. Mr. W. Bates took the lead in another black Grape class, followed by Mr. Cambell, and Messrs. Barnes, Cambell, Bates, and Wilks being the prizewinners for white Grapes. Cherries, Peaches, Nectarines, Melons, Strawberries, and other fruits were well shown, the chief prizetakers being Messrs. Bates, Sullivan, Howell, Ford. Messrs. T. Rivers & Son, Sawhridgeworth, sent a collection of Cherries, Peaches, Nectarines, and Plums.

Vegetables were capitally shown for the Society's prizes, also for these offered by Messrs. Sutton & Sons, Carter & Co., and Daniels Bros. The prizewinners were Messrs. C. J. Waite, D. White, Coombe, and Stroud. Cucumbers also were well represented. The quality was exceptionally good in all these classes.



HARDY FRUIT GARDEN.

STRAWBERRIES.—There is every prospect of a very heavy crop of Strawberries being had this season, the first fruit being much finer than usual; this probably being due to immunity from destructive late frosts, and which often spoil the earliest flowers. Where there has not been sufficient rain to well soak the ground a heavy watering ought to be applied, the preference being given to pond or softened water. In most instances it is advisable to anticipate dryness, as when once the ground becomes dry about the plants it is almost useless to attempt re-moistening it. Where the fruit rests on the ground, or rather the mulching of strawy litter, it is unwise to use any kind of liquid manure, nor is this necessary if an early surfacing of soot and wood ashes, guano, or some kind of special manure was given, as it ought to have been.

STRAWBERRIES DURING A WET SEASON.—The foliage is very strong this summer, and should we have a long spell of dull showery weather, the chances are the bulk of the fruit will fail to ripen. Wire crinolines, which can be bought at a comparatively cheap rate, are of the greatest service in bad weather, and failing these, rough substitutes could be made from old fencing wire. These crinolines are not only good aids to ripening, but they also keep the fruit clean, and well out of the way of slugs and insects generally. Much might be done with a few stakes and strips of matting, taking care not to unduly bundle leaves and fruit all up together. Birch and hazel spray again might be used for propping up fruit, and those who have the time to spare for this work will, let the weather be what it may, have good reason to be satisfied with the result of their labours.

INCREASING CHOICE STRAWBERRIES.—Strawberries are very easily increased in great numbers, but those who are anxious to propagate choice varieties must use a certain amount of self-denial at the present time. Quite the smallest plants attempt to fruit; some varieties, including the popular Laxton's Noble, producing, if left alone, surprisingly heavy crops. There is no reason why a few early or extra fine fruit should not be taken from young plants generally, though it is most unwise to allow them to crop to their full extent. Therefore remove all but two or three of the largest fruit on each, and thereby favour the production of strong runners in great abundance. Trampling among the plants leads to the crushing and ruination of numerous runners, and that is another reason why the fruit should be early removed. Place a good flat ridge of loamy compost between the rows, and into this peg down all the runners as they form, and before they lose the roots they inevitably push out. Do not detach any of the runners from the parent plant, at any rate before they are strongly rooted, nor stop the runners the young plants push out. Keep them well supplied with water in dry weather. In this way hundreds, or even thousands, of well-rooted plants will be ready for finally planting out early in August. This will be found a more simple and better plan than layering into pots.

WATERING FRUIT TREES.—Trees growing against south walls rarely get sufficient water, this being especially the case with those partially protected by copings of some kind. An examination of the ground at the foot of the walls will most probably disclose the fact that water is wanted badly, and after it has been carefully loosened with a fork, at least two good waterings ought to be given. Dribblers are simply thrown away, and if liquid manure is applied, as it might well be in the case of heavily cropped old trees, it ought to follow a good soaking of clear water. It is also advisable to lightly remove the surface soil for a yard or more, if possible, from the wall, returning this again on the top of a good mulching of half-decayed manure. Old Morello and other Cherry trees also well repay for this timely attention, moisture at the roots being most necessary when the trees are located on a raised and somewhat dry position.

GRAPE VINES.—These, in common with most other hardy fruit, give good promise at the outset, and if we are favoured with a fairly hot summer, useful crops may be obtained. The disbudding and stopping of the laterals are important details that ought not to be neglected, everything possible being done to hasten the flowering and ripening period. Thin out the laterals freely, stop those reserved at either the first or second joint beyond the bunch, and either tie in or nail to the trellis or wall at once, the warmth of the wall greatly assisting progress. Very old rods frequently fail to bear fruit, and it is advisable, therefore, to lay in young growths to take their place. Stop these and any other leading shoots when about 6 feet long, the laterals also being kept closely stopped at the first joint. Unless this is done the canes may fail to harden and ripen properly.

THINNING OUTDOOR GRAPES.—Strong well ripened canes trained up extra warm walls frequently produce fine bunches, and these, in addition to being reduced in number, or treated much the same as indoor Vines, also pay for having the berries thinned out. This is especially desirable in the case of Black Hamburg, but the common

Sweetwater ought also to be lightly thinned out. Unthinned the berries are comparatively small, and they jam together, also ripening and keeping badly.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Forced Houses.*—Continuous early forcing to ripen the fruit in May when such varieties as Hale's Early, Early Alfred, Early Grosse Mignonne, and Royal George are employed is a serious strain upon the energies of the trees, as they have to make the growth during the early spring months and complete it in the early summer. These varieties, good as they are, are superseded for very early forcing by the American varieties introduced by Mr. Rivers—viz, Alexander and Waterloo. They are clingstones, yet good. To ripen at the close of April or early in May those need not be started before the new year, but to have the first named ripe in May the houses must be started early in December, which is a consideration from a cultural as well as economical point of view. For very early forcing a house that affords accommodation for one or two trees of each of the very early varieties is a great convenience and a great aid to successful practice, as when trees are ripening their fruits they require a different régime from those swelling their crops, and the necessity of starting so early is, as regards most establishments, considerably lessened, whereby the trees make their growth under more advantageous circumstances. After the fruit is all gathered in the early houses ventilate to the fullest extent, if possible removing the roof lights entirely by the early part of July, but guided in this respect by the maturity, or otherwise, of the wood and buds; if mature remove the lights earlier, if not let them remain a time longer. When the roof lights are not moveable, in addition to full ventilation the border should be frequently damped and duly watered, so that no check is given to induce the premature ripening of the young wood and leaves. Keep the latter free from red spider by syringing occasionally, and if necessary apply an insecticide, as it is of the utmost importance that the foliage be kept clean, healthy and ripen naturally. Laterals must be stopped, but where there is space to allow of growth being made without overcrowding encourage it, as a steady and continuous growth by promoting root action will prevent the buds and foliage maturing too early. All shoots that have supported fruit and are no longer required should be removed to admit light and air freely to the growths, and if there is too much crowling of the shoots for next year's bearing thin them well to make space for the free admission of light and air, and the action of water upon the foliage to cleanse and keep free of red spider.

Houses with Fruit Ripening.—Gentle fire heat is necessary during cold nights and on dull days to ensure steady progress, and admit a little air constantly to insure flavour. It is also necessary to assist the later varieties in swelling and finishing. Afford a moderate air moisture for the benefit of the foliage, and do not allow the borders to become dried and cracked, but afford water as required to keep the soil moist, and a mulching of rather littery material will keep the soil moist, in a condition favourable to keeping the roots near the surface and active, and that without undue atmospheric moisture. If the weather be very bright some netting spread over the roof lights will be advantageous alike to foliage and fruit, particularly the latter, especially the thin-skinned varieties as Noblesse, in preventing the fruit being unduly heated by the sun's rays, causing the fruit to ripen at the apex, greatly in advance of the lower parts, and the fruit not infrequently decays there through over-ripeness, whilst the lower part is scarcely fit for use. This is a serious disaster, as the finest fruits ripening most slowly are more likely to be damaged than the smaller; and as all fruits are best ripened gradually than roasted, as is sometimes done under the large and clear panes of glass rightly employed in modern fruit houses, it is necessary during a period of intense heat to afford a slight shade. It is easy in a period of very hot weather to apply a double thickness of herring nets, or a single thickness of pilchard net, which will sufficiently break the force of the most powerful sunlight, ensuring the fruit an evenness of ripening.

Young Trees.—These will have been disbudded, and the shoots regulated so that the principal ones will be 12 to 15 inches apart, and those for next year's fruiting originated from the previous year's shoots disposed about 15 inches asunder along them, stopping them if necessary at 15 inches of growth, and the laterals to one joint as produced. The extensions or main shoots should be trained in their full length, provided they are evenly balanced. If the shoots are stronger on one side than the other, depress the strong and elevate the weak, so as to induce an equal distribution of vigour throughout each tree. Any strong shoots unduly vigorous may be stopped, as grossness is the forerunner of gum. Trees marked by gross wood when young seldom turn out healthy, therefore it is better to cut out excessively strong wood, encouraging the short-jointed and sturdy. Ventilate early in the day, increasing it with the advancing temperature, avoiding a close vitiated atmosphere. It is essential that the growths be trained sufficiently thin to allow of the sun and air having free access, the growths being thoroughly solidified as made, the foliage kept healthy by cleanliness and proper cultural necessities, so that the buds may be duly supplied with nutriment, and accumulation made in the adjacent wood of elaborated matter for the due setting of the blossom and the stoning of the fruit in the ensuing season.

Strawberries in Pots.—Outdoor fruit is late, therefore the resources of the cultivator will be taxed to make those in pots afford a supply of fruit until those in the open ground come in. Late supplies can be obtained in structures from which bedding plants have been removed,

from shelves in wall cases, and from span-roofed frames placed over the rows of plants in the open, which will be ten days to a fortnight in advance of those similarly located in the open. All points considered, one of the most satisfactory of Strawberries is Sir Joseph Paxton, it ripens rather early, and supplies a long succession of finely flavoured fruit in the fullest crop. For early forcing we place reliance on La Grosse Sucrée and Vicomtesse Hericart de Thury, which, though smaller, is better flavoured than La Grosse Sucrée, but there is no comparison of the appearance of the two, and appearance goes a long way in fruit, particularly for marketing purposes. La Grosse Sucrée is large in size, bright—even glowing—in colour, and well flavoured, though lacking the Pine flavour of the other. We find La Grosse Sucrée too large for jellies, and in some places the cook or still-room maid makes large calls for a few fruits for jelly. Some proprietors of gardens require fruit early, in the dressing-room in fact, and the Vicomtesse Hericart de Thury brings eulogiums, whilst La Grosse Sucrée brings admiration with a qualification—i.e., "Fine Strawberries, but they want sun," therefore flavour. Noble and Auguste Nicaise are also somewhat deficient in quality. They, however, are so fine in appearance and such free setters, swellers, and finishers that they are a necessity at table. Sir Harry is so deep in colour when well ripened as to have the mellow flavour some particularly appreciate, and there is something in this dark yet glowing colour which seems to cause preference to be given thereto, as obtains with Waterloo, these being very full flavoured without the briskness of the lighter-coloured varieties. We mention these matters, as it makes just all the difference between pleasing and not in the cultivator studying the tastes, or at least taking notice of what is and what is not appreciated by the employer, so as to grow in accordance with requirements. Sir Joseph Paxton seems to please everybody, at least we have never had a complaint respecting it, only it requires time to ripen fully to the tip, and President always commands appreciation, though it requires a rather dry atmosphere to ripen without spotting. Mr. Radclyffe and James Veitch yield to none in size and crop, but they do not take like the brilliant scarlet or crimson of Sir Charles Napier or Marguerite, the latter attaining to an enormous size, and has a sprightly flavour (which some find retained in jam), while Sir Charles Napier is brisk—qualities which have many admirers. British Queen, Dr. Hogg, and Cockscorn are matchless for quality and for late forcing unrivalled, as they crop well and finish satisfactorily in a rather dry or well ventilated atmosphere.

THE FLOWER GARDEN.

Spring Flowering Bulbs.—As a rule the less spring flowering bulbs are disturbed the better, at any rate till such times as they have become so thick in the clumps or rows as to need dividing. Even in the latter case the bulbs should not be interfered with till the autumn, not a few, notably the Narcissi, dividing best when active top and root growth has commenced. Hyacinths and Narcissi necessarily lifted from beds in order to prepare the latter for summer occupants, are rarely of any value the following spring, fresh bulbs being needed for the beds, or the display will be a failure. But if they are planted in the borders or any sunny position where they will not be disturbed for several seasons, many of them will eventually spread and do well. Tulips form fresh bulbs more quickly, and these, Crocuses, Snowdrops and Scillas, after being laid in the ground till the foliage is ripened off, may be lifted, stored in boxes of sand during the summer, and replanted next autumn. The less Anemones are disturbed the better, but if they must be lifted, wait till the foliage is dead, then lift, dry, and store in sand. Ranunculuses, however, are safest out of the ground, being lifted after the foliage is ripened off, dried, and stored in boxes in a cool dry shed.

Seed to be Sown.—Aquilegias are a very beautiful class of plants. If the seed is sown now in boxes or pans and set in a rather cool position, it will germinate freely with or without a glass covering, and the seedlings being duly pricked out and transplanted will most probably flower strong in June next. Brompton Stocks, Wallflowers, Forget-me-nots, Sweet Williams may yet be sown, but very strong plants will not be obtained. In this instance the simplest plan is to sow seed where the plants are to flower. Sheltered borders are good positions for this class of plants, the ground being manured and got into a finely divided state. Open shallow drills about 9 inches apart, well moisten these prior to sowing the seed thinly, and cover the latter with fine soil. If the plants come up rather thickly, the thinnings may be pricked out elsewhere, and either single plants or patches may be moved with a trowel later on. Pansies may also be sown either in boxes or on a well prepared border, and if Hollyhocks are raised in a similar manner capital strong plants may be prepared for flowering next season.

Shrubs and Conifers.—Where these are used for furnishing beds during the winter, and for which purpose many species are very effective, they must be taken good care of during the summer, or otherwise a valuable stock may soon be decimated. Being properly "balled" when received from the nurseries or transplanted from other quarters they can be safely moved at almost any time. In many instances they are temporarily laid-in by the heels till the work of refilling the beds is completed, but if left in this state they are certain to spoil each other. In the flower beds every small tree or shrub stands clear of each other, and they ought to have quite as much room in their summer quarters. Dryness at the roots is a frequent cause of numerous failures. When once the balls of soil and roots become thoroughly dry it is not possible to re-moisten them by ordinary means. This being a comparatively dry

season there is all the more necessity to closely examine the state of the soil. All that are dry should be well soaked in buckets or tubs of water prior to replanting them in good light soil and a cool position, the rest being heavily watered after they are planted. During a dry summer frequent overhead waterings and a soaking occasionally are needed, mulebings of some kind being given early in any case.

Spring Bedding Plants.—The stock of old plants of various early flowering perennials again must not be neglected any longer, always supposing these too are laid in thickly by their heels till a convenient time arrives for dividing and replanting them. A north or other cool border, the soil of which is not stiff and lumpy, best suits the majority of them, and a few handlights are also of good service in striking any of the rootless divisions of Aubrietias, Alyssums, Hepaticas, Myosotises, eboice or double Wallflowers, Euonymus radicans variegata, Pansies, and Violas. All the pieces of any of the foregoing with roots attached may be dibbled out firmly 4 inches or rather more apart in rows 9 inches asunder, a good watering occasionally with perhaps a temporary shading serving to give them a good start. A cool position is also the best for handlights, the cuttings being shaded in bright weather, and temporarily hedged out as soon as they are well rooted. Primulas, Primroses, Polyanthus, Daisies, Pansies, Violas, and Saxifrages divide readily, and if the divisions are bedded out in a cool position, and otherwise well attended, a good stock of healthy plants will be available for the flower beds next autumn.

Seedling Polyanthus and Primroses.—The strains of these, the first named in particular, are so very much improved that quite gorgeous displays are made by them in the spring. Seedling plants are more vigorous and far more effective than any raised by dividing old plants, but they must be raised in March or April, and otherwise well prepared. Instead of long keeping them crowded together in seed pans or boxes the seedlings ought first to be pricked out in other pans or boxes, and kept in frames till June. By the present time they would be large enough to put out on a cool border, plenty of leaf soil or other fine soil being added to this if at all stiff or lumpy. Plant them about 5 inches apart each way, and keep them well supplied with water. Thus treated, fine strong plants will be ready when wanted, and being duly transplanted to beds of rich loamy soil, the ultimate result will more than compensate for the extra trouble taken.

THE BEE-KEEPER.

NOTES ON BEES.

PRESERVING BEES.

THE preservation of bees during the winter has had great attention for many years, and much has been written upon the subject, the greater portion, being of little value. The art of preserving bees during winter may be summed up thus. Keep the hives protected from rain, and carry off the internal moisture by insensible upward ventilation, by coverings of dried grass, and by a narrow doorway and a ventilating floor. With large stores a capacious hive, having a fair quantity of bees and a young naturally reared queen, and the severest winter ever experienced in this country will not harm them.

SPRING AND SUMMER DWINDLING.

It is not winter, but dwindling in spring and summer that is the bane of bee-keeping, and which baffles the bee-keeper in his endeavours to do his best to tide his bees over times and seasons disastrous to them, and at the very times, too, when everything favourable might be expected. Such is the state of matters here this year. Since June came in we have not had a dry day, the sun is rarely seen, and since May commenced we have only had three days at all bright, and so wet was the soil that killing weeds by Dutch hoeing could only partially be effected on two of these days. When I wrote on the 13th inst. I was in hopes the weather was improving; the reverse has been the case, and it is now (June 20th) as stormy and bleak looking as ever. The loss of bees continues, hives are no more crowded than they were at the middle of April, and in addition to the loss of adult bees, drawing brood and the deposition of queens are going on alarmingly, and young queens hatched as early as the middle of May have not had the slightest chance of flying. There is no alternative, but feeding the bees if they are to be kept alive, but even with that there is risk that many hives will become useless unless the weather improves.

quickly. Young queens will remain sterile, and although old ones may be spared, there is a great likelihood they will be deposed before swarming time next year. Up to date it is the worst season for bees and the bee-keeper I have experienced. From the 15th of May till the 7th July, 1889, the weather was, comparatively speaking, fine, but since that, if we except two weeks in October, there has been only three weeks without rain. December and June have been so like each other, that the length of the day and vegetation are the only things that make the difference.

The honey weather of 1889 came too early for the weak hives; whereas this year the bees were too far advanced at too early a period. We have no control whatever over these things; but we have to a certain extent control over our hives. I have over and over again cautioned bee-keepers against artificial work and uncalled for manipulations during the spring months, and even in summer, and the only regret I have is that I have not them here to show the difference between manipulated and artificially fed hives and those that have never been touched nor cared for further than putting them past for the winter in a proper state. There is no waste of eggs, and consequently impairing of the functions of the queens, nor are any of such hives deposed, all the mischief being with and upon the first named. Frequently in years gone by there have been but few hours between what might be termed winter and summer weather, so that hope is not lost yet, as we are not at the average time of the proper yield of honey; but the weather is unpromising. One thing is certain, the Clover season will be of very short duration, although with but few days the honey yield will be large. To secure this the utmost care will have to be exercised to keep the hives strong. Swarming ought to be discouraged as much as possible and the doubling of other hives resorted to. It will be a great difficulty to prevent swarming owing to the queens having laid so long, and as the weather has fully frustrated all attempts to have young queens in readiness for any emergency the difficulty is increased. Strong hives are the sure means of obtaining a good return; no effort must be spared, nor sacrifice grumbled at to secure them.

YOUNG QUEENS.

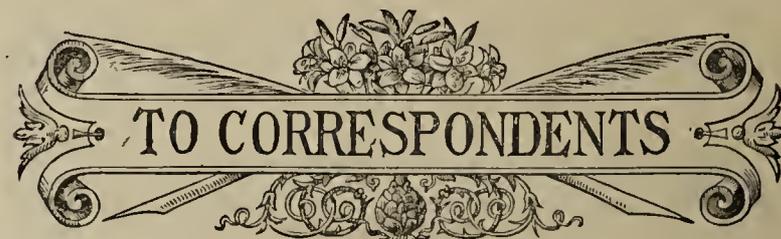
For late work and for next season will be our first and anxious desire, and on the first approach of fine weather I shall set to work in getting them forward. This should be the first, as it is the most important work to perform at this season. The long delay in the fertilisation of young queens will result in a double loss to bee-keepers who depend upon after swarms for late Heather work. In addition to the above I shall at once prepare my hives with their dress for the Heather, so that they will be accustomed to it before removing them, which to every appearance will be long before the Clover is past. In other respects I am at a standstill, neither knowing, nor can I advise under the present circumstances what is best to be done, the weather being so powerful an agent both for and against us. A few hours may turn the tide, but we must continue feeding the bees at present.

CAUTION.

Owing to the untoward weather bees are now much disposed to rob and fly about in search of sweets. The lower the stores are the greater the disposition to fly in this way, and the greater the loss of bees. Just to show the evil effects of exposing sweets I may state that a bee-keeper a quarter of a mile distant from me exposed a hive containing combs and some honey; in a few minutes the whole apiary was in an uproar, and fighting and killing has since been the order of the day, and has continued for two weeks. I have good reason to believe the bees killed in my apiary are those belonging to the person who exposed the honey, but the bees from every hive which scent the honey are on the alert.

Exposing sugar outside has the same effect, and ought not to be practised. Feed your bees according to their wants at night, and in a manner that will in no way incite robbing. A very little exposed syrup, spilt upon or about the hive, when bees are on

the alert will end in loss. After the first day's gathering of honey, but not till then, shall I apply supers, and my advice to others is to do the same.—A LANARKSHIRE BEE-KEEPER.



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Centipedes (*A. Lewis*).—There was a postal charge of 2d. on your packet. Please forward stamps. An examination will be made of the specimens.

Food Reform Colony Scheme (*J. T. R.*).—Particulars of this scheme appear necessary for it to be fully understood, and these you have not sent.

Mushrooms (*E. C.*).—The examples you sent are of the true Mushroom, *Agaricus campestris*, but very inferior, as is usually the case at this time of the year, except when grown under specially cool conditions. See reply to another inquirer on this subject.

Eucharis Unhealthy (*G. T.*).—We have examined the roots sent, but though they have all the indications denoting the presence of the mite, we cannot find the pest itself. Have you searched the bulbs themselves? as the mite is often found on the edges of, or within, the scales.

Tuberoses (*H. R.*).—The bulbs are small, but sound inside, and we suspect would have grown if they had been potted and properly managed. The dry room in which they have been kept was much too warm. They ought either to have been potted sooner or kept much cooler.

Books (*W. F. S.*).—A work was published some time since by Mr. S. Jennings on the subject you name, but the price was about 3 guineas, and would therefore not suit you. Try Messrs. Veitch and Sons' "Manual of Orchidaceous Plants," Mr. B. S. Williams' "Orchid Grower's Manual," or Mr. L. Castle's "Orchids," but all except the last named exceed the price you mention.

Maggots in Mushrooms (*R. I. L.*).—We know of no means of preventing Mushrooms being attacked with maggots at this season of the year otherwise than by having the beds in the coolest possible positions that can be found for them. For obtaining maggot-free Mushrooms in summer Mr. Gilbert and some other cultivators make the beds that are intended to bear after May in excavations in the ground on the north side of walls or buildings where the sun seldom reaches, or in very cold cellars. A fly is the author of the evil, and when the temperature is favourable for its emergence it will be as certain to visit Mushroom beds as some other kinds are to visit meat which hangs too long in warm places. Professional Mushroom growers do not find the cultivation profitable in summer, therefore practically abandon it for three or four months, though in private gardens Mushrooms may be grown at the present time onwards, when cool, damp, dark positions can be found for the beds.

Guidance for Young Gardeners (*Mrs. M.*).—The work you mention is out of print, and we know of no similarly cheap work suitable for the purpose you mention. Although you say there is "no glass," surely no young gardener would desire to limit his information as suggested. Messrs. Sutton & Sons, Reading, and Messrs. James Carter & Co., 237, High Holborn, London, publish useful practical works on gardening, particulars and prices of which can be had from those firms. The "Gardener's Dictionary," 8s., post free, from this office, is an excellent work of reference, but no book or books can compensate for the absence of a weekly gardening paper, for what precise information is not found in its columns can be had on application to the Editor. Nearly all the best gardeners of the day gathered more information when they were students from the gardening press than from books; and they can better dispense with books than with papers now they are proficient in the art of cultivation. Every gardener worthy of his name should not only read but own a gardening paper, and if he cannot afford the trifling outlay for that purpose, he is either insufficiently paid, or improvident in the disposal of his money.

Vine Roots (T. C).—It was not necessary to send soil, though you might have described its nature; but it was very necessary to describe the treatment to which the Vines have been subjected, also the length and strength of the canes when planted. You state nothing to enable us to form an opinion as to the cause of the failure, and we can only say if the roots are just as they came from the soil, not wetted afterwards, the border is a very great deal too wet, or just in the condition for preventing root extension and the consequent free growth of young Vines. If you like to write more fully, the case shall have our further attention. Have you been using liquid manure?

Second Crops of Melons (W. W.).—We have had many second crops, and sometimes these have been even better than the first. For insuring this the plants must be early, and the first crop ready, say early in July; there must be a good command of heat and good cultural attention. The plants must not be dried in the manner that some cultivators deem necessary for ripening the fruit, but must be kept steadily growing, the foliage always fresh, and no red spider or other insects permitted on it. After the first crop is cut a slight pruning and re-arrangement of the growths may be needed, and a little of the surface soil removing from the bed, fresh being added to incite the formation of fresh roots. These produced, the rest is easy, amounting to a repetition of the treatment by which the first crop was produced. When the first ripe fruits are removed the plants grow freely, and soon commence flowering. Space must be afforded for the newly developing leaves, some of the older, which will be fading, being removed for that purpose. We do not approve of withholding water from Melons to improve the flavour; healthy active foliage well exposed to the light and air is far more effectual in imparting flavour to the fruit than dry soil is and withered leaves.

Roses not Opening (J. W.).—The buds, stems, and leaves sent indicate exhaustion of the plants. They may be enfeebled by old age or by the soil becoming impoverished. After Roses have been long established the roots extend far distant from the stems, often into subsoil from which they can derive little support. In some soils Roses, if kept clean, continue healthy and floriferous for several years, but this is not the case everywhere. You say nothing about pruning, and the examples before us suggest that this has not been sufficiently close. It is certain the nutriment supplied by the roots is inadequate for the support of good foliage and fine blooms. If water passes from the soil freely copious supplies of liquid manure given during the winter as well as summer would be likely to do good, not poured round the stems merely, but a distance from them equal to twice the length of the branches. When the ground is in good condition for the reception of liquid manure in winter it may be given of twice the strength at which it is usually applied in summer, and it has proved of great benefit to enfeebled Roses and fruit trees. The oldest and weakest wood should be cut out in pruning, reliance being mainly placed on cut back young shoots for producing blooms. If you had given fuller information about the condition of the plants and the treatment to which they have been subjected we should be in a better position for answering your letter to our satisfaction.

Pruning Fruit Trees and Bushes (St. Julien).—If by "five snags" you mean that five young growths are pushing in a cluster, you may remove three of them, and those remaining, if stopped in the summer and cut back in the winter as advised in the work alluded to, will form fruit buds in due time. If we do not comprehend your question please send a fairly representative sketch, not necessarily artistic, and we will try again. The summer shortened shoots of Gooseberries should be cut back a little in winter the same as Red Currants, but some young shoots of Gooseberries should be retained when there is room for them without overcrowding the bushes. It does not matter how many leaders of Red Currants are left from each stem provided they are trained 6 inches apart, and it is desirable that they be as equal in growth as possible. If one or two grow much more luxuriantly than the others nip out the points of the former, taking one resulting shoot from each for the leaders, pinching to three leaves any others that push at the same time. We presume you do not need information on the Grapes and Tomatoes to which you refer, as you do not ask any question about them. Skilful Grape growers make their crops pay very well, but they cannot grow good crops of Tomatoes under fruiting Vines. Many persons can grow Tomatoes profitably who are unable from various causes to succeed equally with Grapes. Grapes are kept in rooms in hundreds of establishments.

Names of Plants.—We only undertake to name species of plants, not varieties that have originated from seed and termed florists' flowers. Flowering specimens are necessary of flowering plants, and Fern fronds should bear spores. Specimens should arrive in a fresh state in firm boxes. Slightly damp moss, soft green grass or leaves form the best packing, dry wool the worst. Not more than six specimens can be named at once, and the numbers should be visible without untying the ligatures, it being often difficult to separate them when the paper is damp. We have received several boxes and packets of specimens for naming so carelessly packed that the plants could not be recognised when they reached us. At this time of year especial care is necessary, as if parcels are delayed in the post, flowers packed in dry paper or cotton wool are completely withered in a short time. (J. H.).—1, *Viburnum Opulus*. The others were dried beyond recognition. (H. T. H.).—*Dictamnus fraxinella albus*. (*Adolescens*).—Varieties of *Campanula persicifolia*. (B. R.).—1, *Geranium pratense flore-pleno*; 2, *Hieracium aurantiacum*; 3, *Plantstem californicus*; 4, *Thalictrum aquileg'olium*. (S. T.).—All the specimens were too withered.

COVENT GARDEN MARKET.—JUNE 25TH.

TRADE brisk, with good supplies, and prices generally lower. Grapes as last week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.		
Apples, ½ sieve	2	0	to	6	0	Lemons, case	19	0	to	15	0
" Nova Scotia and ..	18	0	25	0	Melons, each	2	0	3	6		
" Canada, per barrel	15	0	0	0	Oranges, per 100 ..	4	0	9	0		
" Tasmanian, p. case	9	0	12	0	Peaches, dozen	4	0	12	0		
Cherries, per ½ sieve ..	1	6	3	0	St. Michael Pines, each..	2	0	6	0		
Grapes, per lb.					Strawberries, per lb. ..	0	0	0	6		

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.		
Artichokes, dozen	0	0	to	0	0	Mushrooms, punnet ..	1	6	to	2	0
Asparagus, bundle ..	2	0	4	0	Mustard & Cress, punnet	0	2	0	0		
Beans, Kidney, per lb. ..	0	9	1	0	Onions, bushel	3	0	4	0		
Beet, Red, dozen	1	0	0	0	Parsley, dozen bunches	2	0	3	0		
Brussels Sprouts, ½ sieve	0	0	0	0	Parsnips, dozen	1	0	0	0		
Cabbage, dozen	1	6	0	0	Potatoes, per cwt.	3	0	4	0		
Carrots, bunch	0	4	0	0	" New, per lb.	0	2	0	0		
Cauliflowers, dozen	2	0	4	0	Rhubarb, bundle	0	2	0	0		
Celery, bundle	1	0	1	3	Salsafy, bundle	1	0	1	6		
Coleworts, doz. bunches	2	0	4	0	Scorzoneria, bundle ..	1	6	0	0		
Cucumbers, doz.	2	0	3	6	Seakale, per bkt.	0	0	0	0		
Endive, dozen	1	0	0	0	Shallots, per lb.	0	3	0	9		
Herbs, bunch	0	2	0	0	Spinach, bushel	1	0	2	0		
Leeks, bunch	0	2	0	0	Tomatoes, per lb.	0	6	0	9		
Lettuce, dozen	0	9	1	3	Turnips, bunch	0	4	0	0		

CUT FLOWERS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Arum Lilies, 12 blooms ..	2	0	to	4	0	Mignonette, 12 bunches..	2	0	to	4	0
Asters, per bunch, French	1	6	2	0	" Fr., large bnch	1	6	2	0		
Bouvardias, bunch	0	6	1	0	Narcissus, 12 bunches ..	0	0	0	0		
Carnations, 12 bunches ..	4	0	6	0	Pæony, dozen bunches ..	6	0	12	0		
" 12 blooms	1	0	2	0	Pansies, dozen bunches ..	1	0	2	0		
Calceolaria, doz. bunches	4	0	6	0	Pelargoniums, 12 trusses	0	9	1	0		
Cornflower, doz. bunches	2	0	4	0	" scarlet, 12 bnchs	4	0	6	0		
Eschscholtzia, 12 bunches	2	0	4	0	Pinks (various), doz. bnchs.	3	0	6	0		
Eucharis, dozen	4	0	6	0	Primula (double), 12 sprays	0	6	1	0		
Forget-me-not, doz. bnch.	1	6	4	0	Ranunculus, doz. bunches	2	0	4	0		
Gardenias, 12 blooms ..	1	6	3	0	Roses (indoor), dozen ..	0	6	1	6		
Iris, various, dozen bnchs.	6	0	18	0	" Moss (Eng.), 12 bch.	6	0	13	0		
Lapageria, 12 blooms ..	2	0	4	0	" Red (Eng.) 12 bch.	4	0	9	0		
Glaudiolus, 12 bunches ..	4	0	9	0	" Red, 12 blooms	2	0	4	0		
Gypsophila, per bunch, Fr.	1	6	2	0	" Tea, white, dozen ..	1	0	3	0		
Lilium, various, 12 blms.	0	9	2	0	" Yellow	2	0	4	0		
" longiflorum, 12 blms.	2	0	4	0	Spiraea, dozen bunches ..	6	0	9	0		
Marguerites, 12 bunches	2	0	6	0	Tuberose, 12 blooms ..	0	6	1	0		
Maidenhair Fern, dozen	4	0	9	0	Wallflowers, doz. bunches	2	0	4	0		

PLANTS IN POTS.

	s.	d.	s.	d.		s.	d.	s.	d.		
Aralia Sieboldi, dozen ..	6	0	to	12	0	Geraniums Scarlet, p. doz.	3	0	to	6	0
Arum Lilies, per dozen ..	8	0	12	0	Heliotrope, per doz. ..	5	0	8	0		
Arbor Vita (golden) doz.	6	0	8	0	Hydrangea, doz. pots ..	9	0	18	0		
Azalea, various, per dozen	0	0	0	0	Lily of the Valley, 12 pots	0	0	0	0		
Calceolaria, per doz. ..	6	0	9	0	Lobelia, per doz.	4	0	6	0		
Climbing Plants, various,					Marguerite Daisy, dozen	6	0	12	0		
dozen pots	4	0	9	0	Mignonette, per dozen ..	4	0	6	0		
Cyclamen, per dozen ..	0	0	0	0	Musk, per dozen	2	0	4	0		
Deutzia, 12 pots	0	0	0	0	Myrtles, dozen	6	0	12	0		
Dracæna terminalis, doz.	24	0	42	0	Nasturtiums, dozen pots	3	0	4	0		
" viridis, dozen	12	0	24	0	Palms, in var., each ..	2	6	21	0		
Epiphyllum, per dozen ..	0	0	0	0	Pelargoniums, per doz. ..	9	0	18	0		
Erica, Cavendishi, per pt.	2	0	3	0	Rhodanthe, per dozen ..	4	0	8	0		
" various, dozen	12	0	18	0	Roses (Fairy), per dozen	8	0	10	0		
Euonymus, var., dozen ..	6	0	18	0	" 12 pots	12	0	24	0		
Evergreens, in var., dozen	6	0	24	0	Saxifraga pyramidalis,						
Ferns, in variety, dozen..	4	0	18	0	per dozen	18	0	24	0		
Ficus elastica, each ..	1	6	7	0	Spiraea, 12 pots	6	0	9	0		
Foliage plants, var., each	2	0	10	0	Stocks, per doz.	4	0	6	0		
Fuchsia, per doz.	4	0	9	0	Tropeolums, various, per						
Geraniums, Ivy, per doz.	4	0	6	0	dozen	3	0	6	0		

Bedding Plants in variety, in boxes and pots.



POSSIBLE IMPROVEMENT.

WHERE can we get good butter? This is the question that has become so common as to take rank among the most prominent of our household words. With healthy cows and plenty of green food really good butter is hardly to be met with, and whether we turn to grocer or farmer a more or less inferior article—a mere apology for butter—is offered us. Can we wonder that the price of such fresh butter has fallen to 6d. per lb., and that dairy cows are consequently also falling in price? There is the British Dairy Farmers' Association holding its sixth annual Conference—this time in Yorkshire—yet nothing like an attempt at general improve-

ment has taken place. The principal reason for this is probably not owing so much to a want of knowledge as a want of means. It is notorious that farmhouses generally are sadly deficient in dairy accommodation, and there can be no doubt that dairy factories are the real remedy, and that there we obtain that uniform quality which is indispensable to a brisk demand and prompt sale.

Meanwhile the loss to the British farmer is enormous, the value of dairy produce imported during the first three months this year amounting to £8,262,265, or £344,437 more than it was during the corresponding period last year. Do we realise what this means? Divide the total by the number of days contained in those three months and it works out at £90,000 a day lost to the farmers of this country. Clearly a very great improvement in our dairy practice is possible, by any means—self-help and united effort, no matter which—only let us do what is entirely in our power, and that is to produce butter and cheese of such uniform excellence as to command a profitable sale. The market is open, provision merchants have to supply a want, and they just purchase at the best market.

Instead of continuing to grow Wheat at a loss we should do well to adapt our cropping to the requirements of the day, keeping more and better live stock both for dairy and butcher, and growing as much food upon the farm for them as possible. At Eston Grange some members of the Association were shown a fine herd of about forty cows, all described as useful milkers. One of them gave 1430 gallons of milk last year, which at market price came to £41 15s. 6d., and the average value of the produce of twenty-one of the cows was stated as being £35 16s. 2d. It is proposed to establish a herd book for deep milkers, and gladly do we hail this as being decidedly a step onwards in the right direction, for it is certain that the milk yield generally would be much increased by careful selection and breeding.

A hopeful view of the future of agriculture is taken by most practical farmers, and one case cannot by any means be regarded as bad or even doubtful. Rents have come down from 30 to 50 per cent.; chemical manures and feeding stuffs have also fallen considerably in value. Cheap land, cheap manure, and cheap food are all to be had, and though Wheat is so low that its cultivation is being more and more confined to the best land only, yet there is an ample margin of profit to be made upon most other farm produce if only the necessary amount of skill, energy, and perseverance are brought to bear upon its production. Beef, mutton, pork, poultry, eggs, butter, milk, cheese, lard, bacon are all in constant demand, and are all highly profitable to the farmer if only they are of the best, but they must be that, and it is simply a matter for individual effort to make them so.

Possible improvement! Aye! there is indeed ample scope for it, and the very best form of protection we can strive for is to render our farm produce so superior, so high in quality, as to command preferential attention in our own markets. That is the way to meet the importer, that is the way to protect our interests. An open market have we, and the *vox populi* which, in this case at any rate is but the utterance of common sense, will never suffer our lawgivers to close it. Imperial federation is probable, and the very mention of it is a reminder that Great Britain is only the head and centre of a vast empire, that our markets can never be closed to the produce of our own colonies, and it follows that we shall always be in competition with countries beyond the seas. We must help ourselves, and the first step to improvement will be taken when we accord full and frank recognition to its possibility. An able writer in *Bell's Weekly Messenger* points out that English factory butter fetches the very highest price, but it is a very, very scarce commodity, and that is the reason why Denmark sent us over 75,000,000 lbs. of butter last year, in addition to what we imported from France, Sweden, Germany, Belgium, Norway, Holland, Italy, Russia, United States, Canada, Australia, New Zealand, East Indies, and other countries. Last year's total value of dairy produce imported into this country reached the immense

sum of £32,451,598, an increase of more than £3,000,000 sterling on the amount recorded in 1888.

WORK ON THE HOME FARM.

Haymaking, ensilage, fallows, and due attention to live stock, among which poultry takes a prominent place, are the chief things requiring special attention now. Of poultry we have now a very fine stock, and we have not a single case of gapes to record among chickens this year. To all who have home farms we especially commend our contemporary *Poultry*, published weekly at the Journal office, as not only abounding with useful hints upon poultry management, but also as showing where to obtain a supply of stock birds. Early last spring we got through *Poultry* a stock of fine Minorca pullets and a cockerel. This has proved one of the best investments we ever made, for they answer most admirably to their character of continuous layers, and while other breeds fall off they continue to afford a full supply of magnificent eggs. As old hens of all breeds cease laying they are either disposed of at once or fattened for sale, our rule being only to keep young stock over winter, and we think there is a considerable waste of food in many poultry yards upon old hens that might just as well be avoided. At the home farm healthy old hens are always in demand for the cook's stock pot, but care must be taken that they are quite healthy, as a doubtful bird may spoil the soup, and vials of wrath will be poured out upon the halliff, within whose duty it certainly falls to see that all produce sent from the farm for home consumption is sweet and wholesome.

Ducklings are now in demand, and our stock is calculated to keep up the supply during the Pea season, after which only an occasional duck or two is required, and a very few stock birds are sufficient. Early turkey poults are now growing fast, and all of them will be well advanced by the time stubble feeding begins. An early supply of these birds is always welcome, and when once we begin sending them to the Hall at least one a week is required onwards throughout the season. This enables us to make a safe calculation as to numbers, which we extend to a safe margin, but it is best to avoid late birds, as they so frequently fail, and rather to send the eggs for use in the kitchen. Preserving eggs is an important part of the home farmer's duties, and while the methods described last week are perfectly reliable, we strongly advise the improved method of a solution of glacialine, into which dip the eggs for an hour, they will then remain quite fresh for several months, so fresh as not easily to be distinguished from new laid eggs.

OUR LETTER BOX.

Oats Dying (Guildford).—The Oats you send exactly resemble some we recently inspected in a field, the enemy being the cockchafer grub. It is most difficult to eradicate. A strong dressing of gas lime worked into the ground in winter has been found serviceable, as has a soaking with ammonical liquor from gasworks, but not always efficacious. On the Continent it has been found advantageous to encourage the increase of starlings by providing them with nesting boxes, one of which has been figured in the *Journal of Horticulture*.

SEED STANDS AT PLYMOUTH.—At the Royal Agricultural Society's Exhibition, which opened at Plymouth on 23rd inst. and closes tomorrow (Friday) night, Messrs. Sutton & Sons have a splendid show of their world-renowned seeds. Their stand, which is the same as they had at the Jubilee Show at Windsor, is most elaborately fitted up and their specialties tastefully laid out. Some little distance away Messrs. Webb make a splendid display, the well known Stourbridge firm, having some magnificent specimens on view. Close by is the stand of Messrs. Carter & Co., who likewise have a most extensive and excellent show of their varied specialties. The numerous assistants at the respective stands appeared as busy as bees.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barome- ter at 32" and Sea Level.	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass		
1890. June.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	15	30.410	57.2	52.2	Calm	56.2	71.9	47.8	149.9	45.4	—
Monday	16	30.258	61.4	57.3	S.W.	57.3	74.9	54.1	121.7	51.7	0.071
Tuesday	17	30.027	57.3	54.9	S.W.	59.1	66.0	53.9	103.2	54.3	0.023
Wednesday ..	18	30.101	58.8	53.9	W.	57.4	71.0	46.8	114.8	44.0	—
Thursday	19	30.128	61.8	52.8	W.	53.2	69.6	54.8	111.0	51.0	—
Friday	20	30.081	59.0	52.9	W.	58.9	70.0	50.6	113.9	47.6	—
Saturday	21	30.117	63.8	54.9	N.E.	59.6	74.4	49.0	102.5	43.7	0.150
		30.160	59.9	54.1		58.1	71.0	51.0	111.0	48.2	0.247

REMARKS.

17th.—Fine and sunny, but rather close and oppressive.
 18th.—Bright warm day; cloudy after 4.30.
 17th.—Wet till 9 A.M., then general overcast, and then rain again from 5 P.M. to 8 P.M.
 18th.—Brilliant morning, cloudy at times in afternoon; spots of rain and slight shower after 5 P.M.
 19th.—Generally cloudy, but some sunshine in the afternoon.
 20th.—Cloudy morning; bright afternoon.
 21st.—Generally cloudy, but some sunshine in the afternoon; heavy rain in the evening.
 Another of the many weeks in which the temperature this year has been remarkably near the average, and has presented no exceptional features.—G. J. SYMONS.

